# BiPAC 5200S *RC* Series

## ADSL2+ Modem / Router

## User Manual

Version released: 2.12.17.0(UE2.C3)3.12.17.0

Last revised date: 07-29-2011

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# Chapter 1

# Introduction the BiPAC 5200S *RC* Series

## 1.1 Introducing the BiPAC 5200S *RC* Series

Welcome to the Billion BiPAC 5200S *RC* Series ADSL2+ Modem/Router. Your Billion router is an “all-in-one” unit, combining an ADSL modem, ADSL router and Ethernet network router, providing everything you need to get the machines on your network connected to the Internet over your ADSL broadband connection.

The BiPAC 5200S *RC* Series router complies with ADSL2+ standards for worldwide deployment and supports downstream rate of up to 24 Mbps and upstream rate of up to 1 Mbps. It is designed for small office, home office and residential users, enabling even faster speed Internet connections. User can enjoy ADSL services and broadband multimedia applications such as interactive gaming, video streaming and real-time audio much easier and faster than ever before.

The product supports PPPoA (RFC 2364 - PPP (Point-to-Point Protocol) over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516), and IPoA (RFC1577) to establish a connection with ISP. The product also supports VC-based and LLC-based multiplexing.

It is the perfect solution to connect a small group of PCs to a high-speed broadband Internet connection. Multi-users can have high-speed Internet access simultaneously.

This product also serves as an Internet firewall, protecting your network from being accessed by outside users. It not only provides the natural firewall function (Network Address Translation, NAT), it also provides rich firewall features to secure user’s network. All incoming data packets are monitored and filtered. Besides, it can also be configured to block internal users from accessing to the Internet.

The product provides two levels of security support. First, it makes LAN users’ IP addresses invisible to outside users on the Internet, making it much more difficult for a hacker to target

your machine on the network. Second, it can block and redirect certain ports to limit the services that outside users can access. For example, to ensure that games and other Internet applications run properly, user can open some specific ports for outside users to access the internal services of the network.

Integrated DHCP (Dynamic Host Control Protocol) services, client and server allow multiple users to get their IP addresses automatically from the product on a boot up. Simply set local machines as a DHCP client to accept a dynamically assigned IP address from the DHCP server. Whenever the local machine is powered up, the router will recognize it and will assign an IP address to connect to the LAN instantly.

For advanced users, Virtual Service function allows the product to provide limited visibility to local machines with specific services for outside users. An ISP (Internet Service Providers) provided IP address can be set to the product and then specific services can be rerouted to specific computers on the local network. For instance, a dedicated web server can be connected to the Internet via the product and then incoming requests for HTML that are received by the product can be rerouted to the dedicated local web server, even though the server may already have a different IP address. Thus, the product may be vulnerable to the attack on the Internet, but the server is protected.

Virtual Server can also be used to re-task services to multiple servers. For instance, the product can be set to allow separated FTP, Web, and Multiplayer game servers to share the same Internet-visible IP address while still protecting the servers and LAN users from hackers.

## 1.2 Features of the BiPAC 5200S *RC* Series

**ADSL Multi-Mode Standard**

Support downstream rate of up to 24 Mbps and upstream rate of up to 1 Mbps. It also supports rate management that allows ADSL subscribers to select an Internet access speed that suits their needs and budgets. It is compliant with Multi-Mode standard (ANSI T1.413, Issue 2; G.dmt(G.992.1); G.lite(G992.2)), G.hs (G994.1), G.dmt.bis (G.992.3), G.dmt.bisplus (G.992.5)). The Annex A and B are supported in different H/W platforms.

**Fast Ethernet Router**

A 10/100Mbps fast Ethernet router is built in with automatic switching between MDI and MDI-X for 10Base-T and 100Base-TX ports. An Ethernet straight or cross-over cable can be used directly for auto detection.

**Multi-Protocol to Establish A Connection**

Support PPPoA (RFC 2364 - PPP over ATM Adaptation Layer 5), RFC 1483 encapsulation over ATM (bridged or routed), PPP over Ethernet (RFC 2516) and IPoA (RFC1577) to establish a connection with the ISP. The product also supports VC-based and LLC-based multiplexing.

**Quick Installation Wizard**

Support a WEB GUI page to install this device quickly. With this wizard, end users not only can enter the information is provided by their ISP easily, this feature also makes immediate internet surfing possible.

**Universal Plug and Play (UPnP) and UPnP NAT Traversal**

This protocol is used to enable simple and robust connectivity among stand-alone devices and PCs from many different vendors. It makes networking simple and affordable for users. UPnP architecture leverages the advantages of TCP/IP and the Web to enable seamless proximity networking in addition to controlling data transfer among networked devices. With this feature enabled, users can now connect to Net meeting or MSN Messenger seamlessly.

**Network Address Translation (NAT)**

Allow multi-users to access outside resources such as the Internet simultaneously with one IP address/one Internet access account. Support a huge variety of application layer gateways (ALG) are such as web browser, ICQ, FTP, Telnet, E-mail, News, Net2phone, Ping, NetMeeting, IP phone and others.

**Firewall**

Support simple firewall with NAT technology and provide option for blocking access from Internet, like Telnet, FTP, WEB, SNMP and IGMP.

**Domain Name System (DNS) relay**

Provide an easy way to map the domain name (a friendly name for users such as www.yahoo.com) and IP address. When a local machine sets its DNS server with this router IP address, every DNS conversion request packet from the PC to this router will be forwarded to the real DNS of the outside network.

**Dynamic Domain Name System (DDNS)**

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname. This dynamic IP address is the WAN IP address. For example, to use the service, you must first apply for an account from a DDNS service like http://www.dyndns.org/.

**PPP over Ethernet (PPPoE)**

Provide embedded PPPoE client function to establish a connection. Users can get greater access speed without changing the operation concept, sharing the same ISP account and paying for one access account. No PPPoE client software is required for local computer. The Automatic Reconnect and Disconnect Timeout (Idle Timer) functions are provided, too.

**Virtual Server**

User can specify some services to be visible to outside users. The router can detect incoming service request and forward it to a specific local computer for task handling. For example, user can assign a PC in the LAN to act as a WEB server inside and expose it to the outside network. Outside user can browse inside the web server directly while still being protected by NAT. A DMZ host setting is also provided to a local computer being exposed to the outside network, Internet.

**Dynamic Host Configuration Protocol (DHCP) client and server**

In the WAN site, the DHCP client can get an IP address from the Internet Service Provider (ISP) automatically. In the LAN site, the DHCP server can allocate a range of client IP addresses including IP address; subnet mask as well as DNS IP address and distribute them to local computers. It provides an easy way to manage the local IP network.

**RIP1/2 Routing**

Support RIP1/2 routing protocol for routing capability.

**Simple Network Management Protocol (SNMP)**

It is an easy way to remotely manage the router via SNMP.

**Web based GUI**

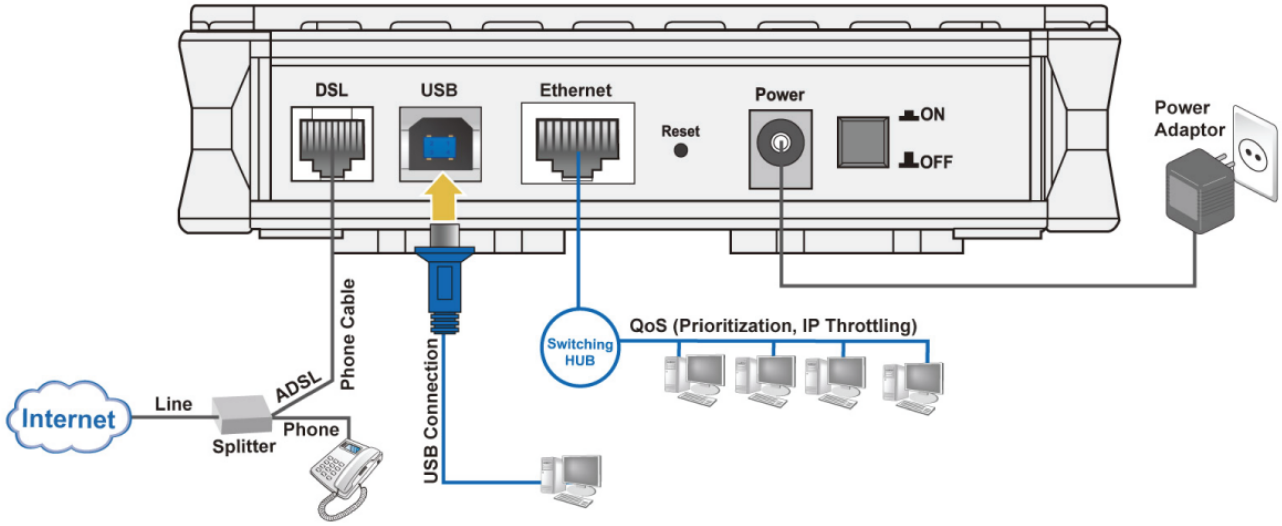
Support web based GUI for configuration and management. It is user-friendly and come with on-line help. It also supports remote management capability for remote users to configure and manage this product.

**Firmware Upgradeable**

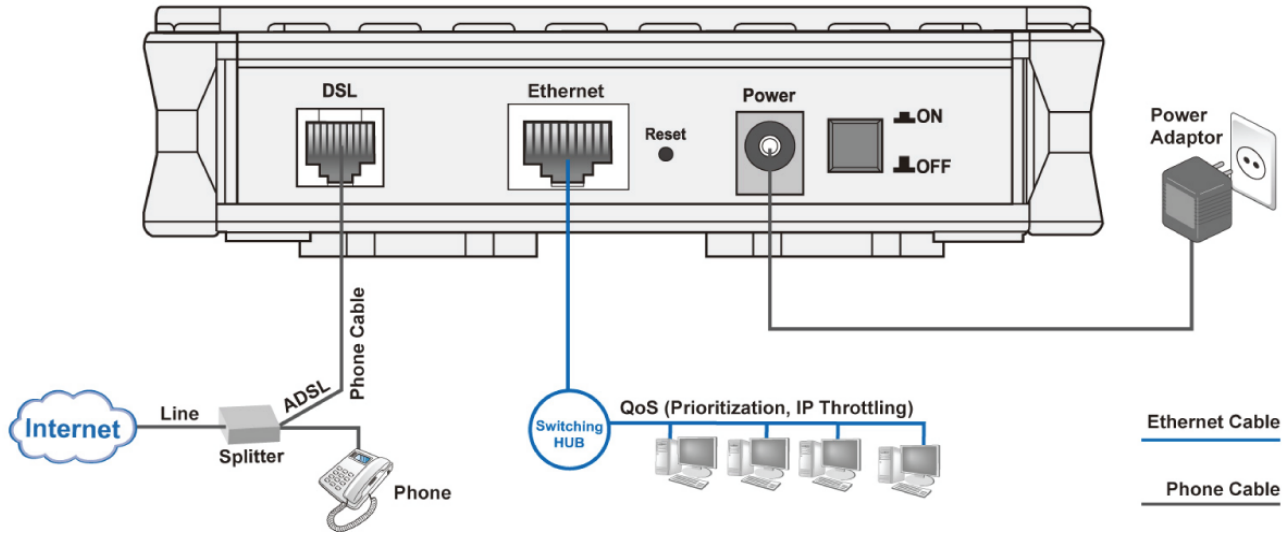
Device can be upgraded to the latest firmware through the WEB based GUI.

## 1.3 Application for the BiPAC 5200S *RC* Series

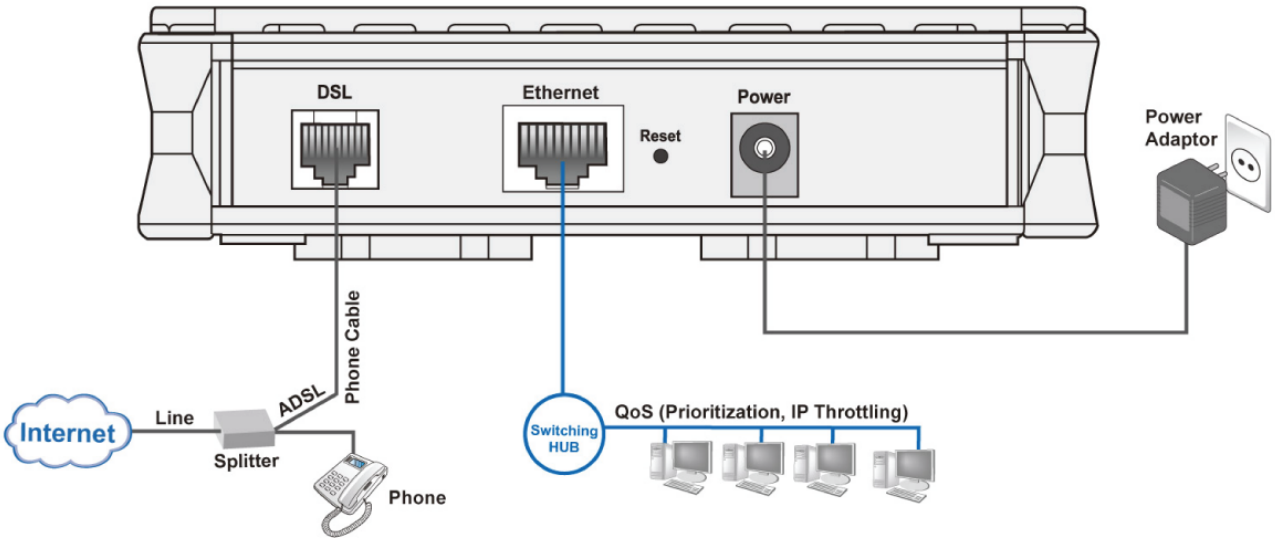
### 1.3.1 BiPAC 5210S *RC*




### 1.3.2 BiPAC 5200S *RD*



### 1.3.3 BiPAC 5200S *RC*



# Chapter 2

# Installing the BiPAC 5200S *RC* Series

## 2.1 Important note for using the BiPAC 5200S *RC* Series

***Warning***

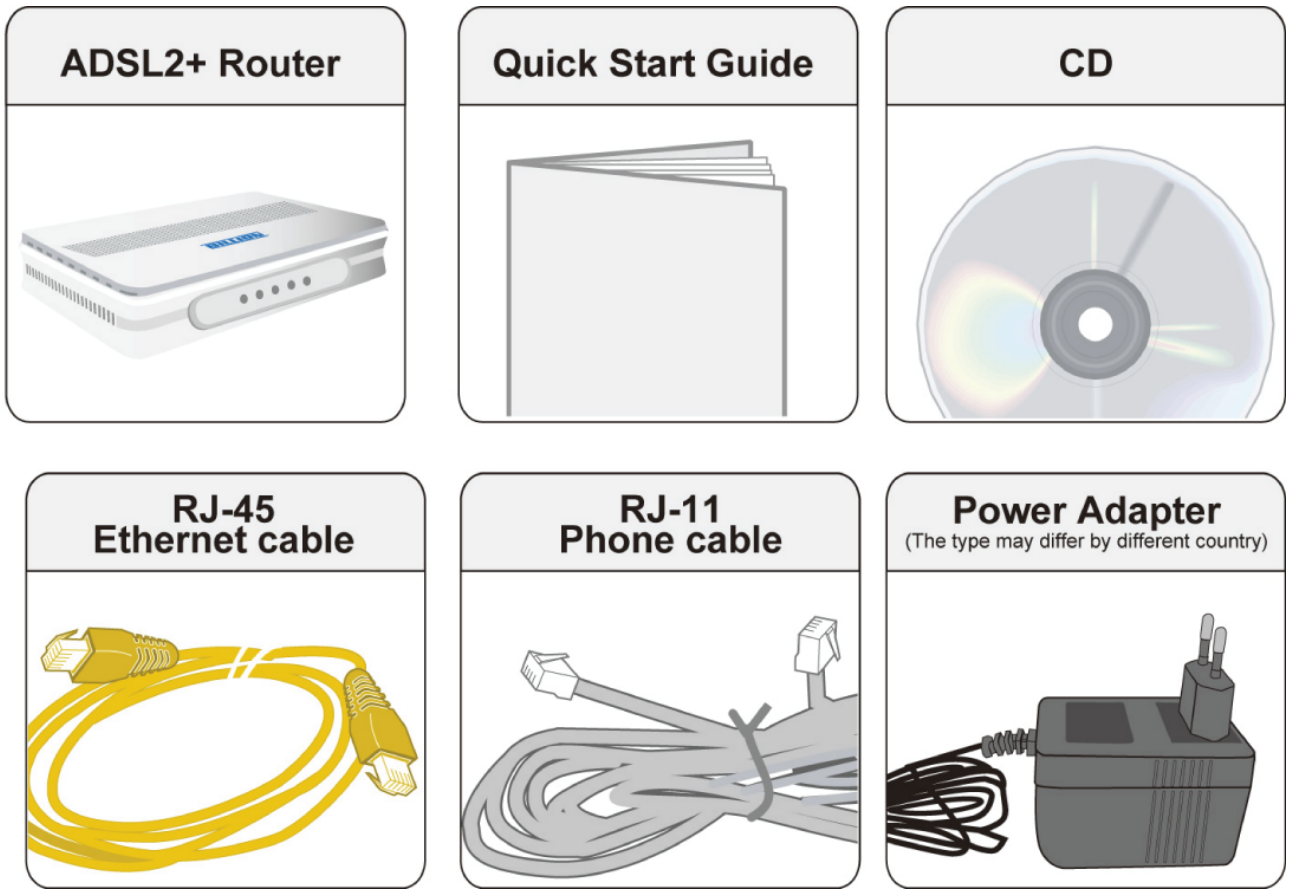
- ✓ Do not use the BiPAC 5200S *RC* Series device in high humidity or high temperatures.
- ✓ Do not use the same power source for the BiPAC 5200S *RC* Series as other equipment.
- ✓ Do not open or repair the case yourself. If the BiPAC 5200S *RC* device is too hot, turn off the power immediately and have it repaired at a qualified service center.
- ✓ Avoid using this product and all accessories outdoors.

***Attention***

- ✓ Place the BiPAC 5200S *RC* Series device on a stable surface.
- ✓ Only use the power adapter that comes with the package. Using a different voltage rating power adaptor may damage the router.

## 2.2 Package Contents

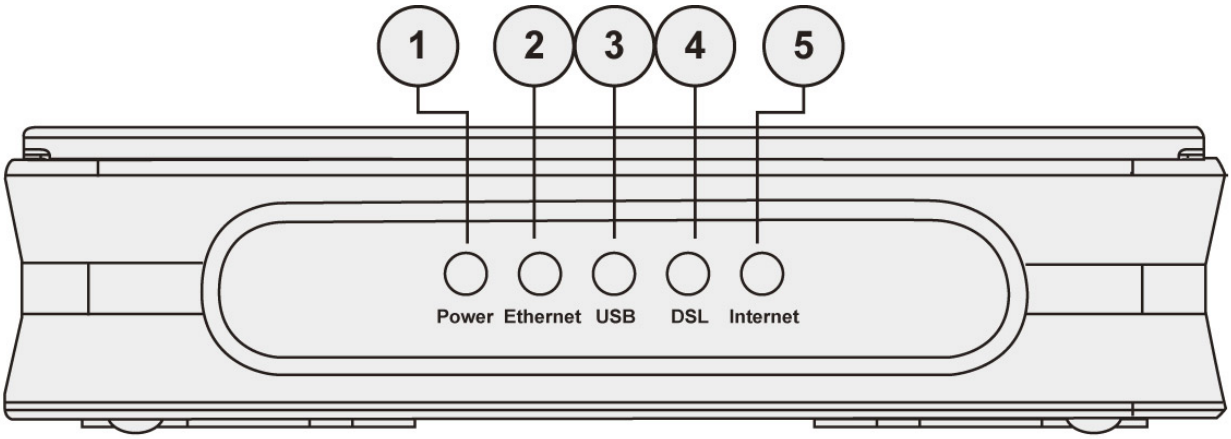
- **BiPAC 5210S *RC* / 5200S *RC* / 5200S *RD* ADSL2+ Modem/Router**
- **CD-ROM containing the online manual**
- **RJ-11 ADSL/telephone Cable**
- **Ethernet (CAT-5 LAN) Cable**
- **USB Cable (For BiPAC 5210S *RC* only)**
- **Power adapter**
- **Quick Start Guide**



## 2.3 Hardware Overview

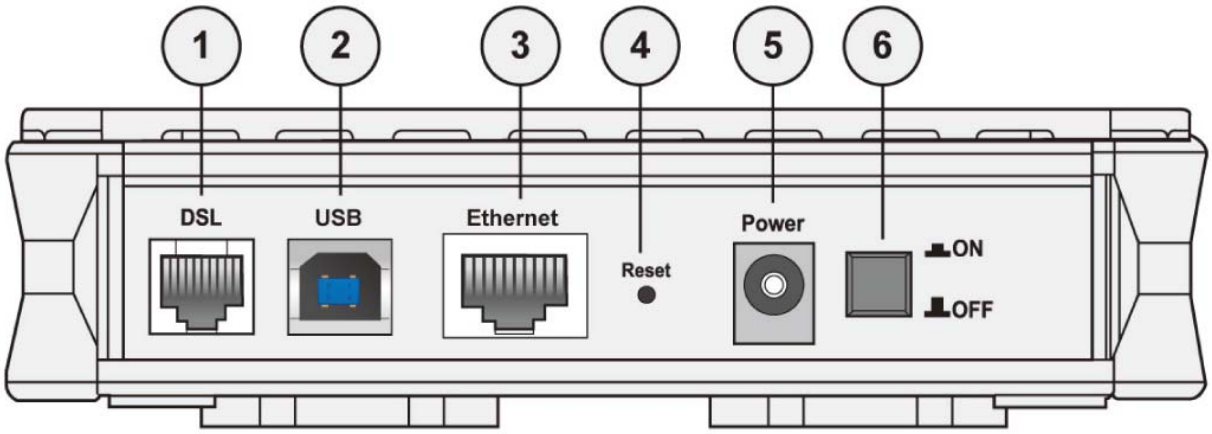
### 2.3.1 BiPAC 5210S *RC*

**Front LEDs**




| LED | | Meaning |
|---|---|---|
| 1 | **Power** | Lit red when power is ON.<br>Lit green when the system is ready. |
| 2 | **Ethernet** | Lit when connected to an Ethernet device.<br>Lit green for both 10M and 100M.<br>Blinking when data is Transmitted / Received. |
| 3 | **USB** | Lit green when the router is connected to a USB device.<br>Flash when data is received / transmitted. |
| 4 | **DSL** | Lit green steadily when successfully connected to an ADSL DSLAM (“linesync”). |
| 5 | **Internet** | Lit red when WAN fails to get IP address.<br>Lit green when WAN gets the IP address successfully. |

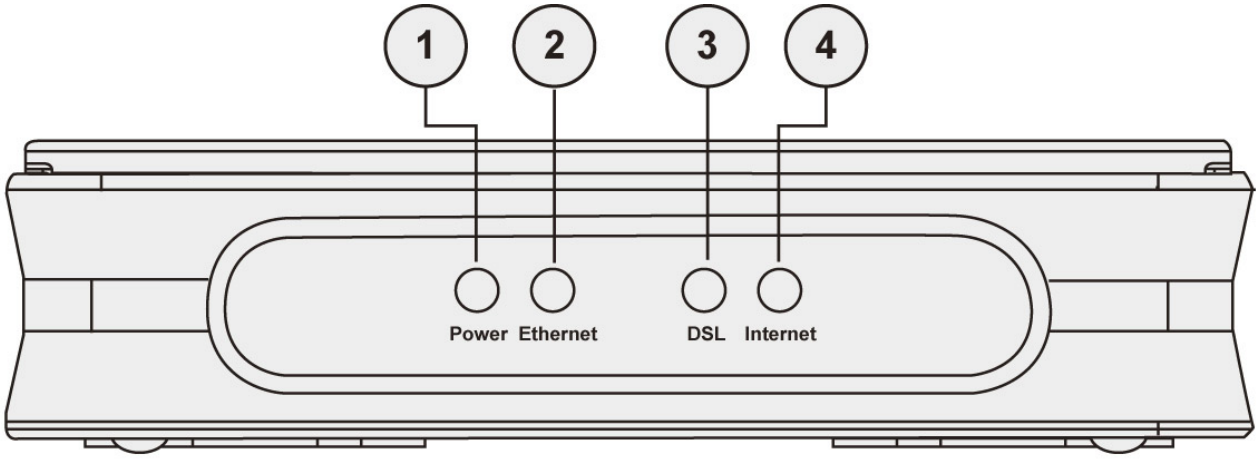
## Rear Panel




| Port | | Meaning |
|---|---|---|
| 1 | **DSL** | Connect the supplied RJ-11 (“telephone”) cable to this port when connecting to the ADSL/telephone network. |
| 2 | **USB** | Connect the USB cable to this port. |
| 3 | **Ethernet** | Connect to a UTP Ethernet cable (Cat-5 or Cat-5e) to the Ethernet port when connecting to a PC or an office/home network of 10Mbps or 100Mbps. |
| 4 | **Reset** | After the device is powered on, press it to reset the device or restore to factory default settings.<br>**1-3 seconds**: reset the device<br>**6 seconds above**: restore to factory default settings (this is used when you cannot login to the router, e.g. forgot the password) |
| 5 | **Power** | Connect the supplied power adapter to this jack. |
| 6 | **Power Switch** | Power ON/OFF switch. |

## 2.3.2 BiPAC 5200S *RC* / BiPAC 5200S *RD*

## Front LEDs

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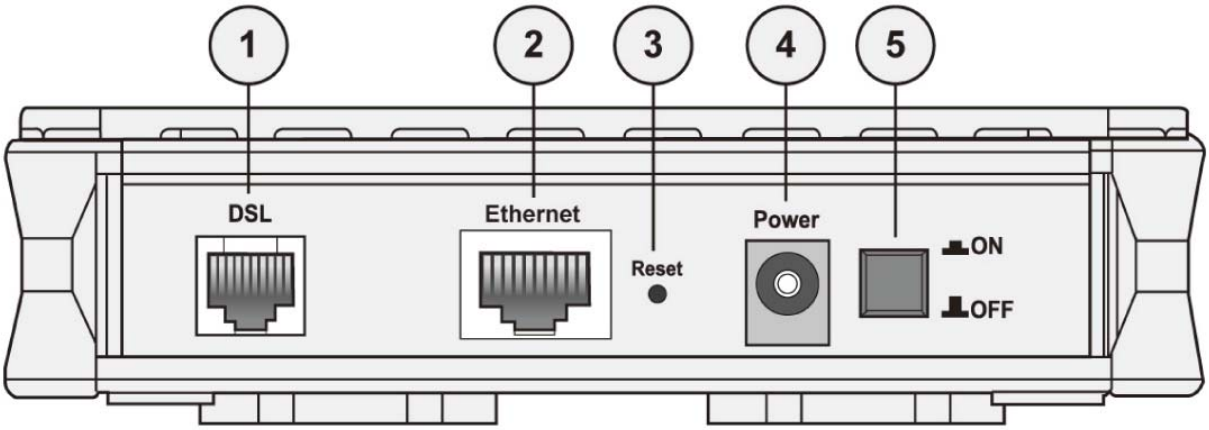
## Rear Panel




| Port | | Meaning |
|---|---|---|
| **1** | **DSL** | Connect the supplied RJ-11 (“telephone”) cable to this port when connecting to the ADSL/telephone network. |
| **2** | **Ethernet** | Connect a UTP Ethernet cable (Cat-5 or Cat-5e) to the Ethernet port when connecting to a PC or an office/home network of 10Mbps or 100Mbps. |
| **3** | **Reset** | After the device is powered on, press it to reset the device or restore to factory default settings.<br>**1-3 seconds**: reset the device<br>**6 seconds above**: restore to factory default settings (this is used when you cannot login to the router, e.g. forgot the password) |
| **4** | **Power** | Connect the supplied power adapter to this jack. |
| **5** | **Power Switch (Only for 5200S *RD*)** | Power ON/OFF switch. |

## 2.4 Cabling

One of the most common problems is due to bad cabling or ADSL line(s). Make sure that all connected devices are turned on. On the front panel of the product is a row of LEDs. Verify that the LAN Links and ADSL line LEDs are lit. If they are not, verify that you are using the proper cables.

Ensure that all other devices connected to the same telephone line as your Billion router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problems with your ADSL connection, including frequent disconnections.

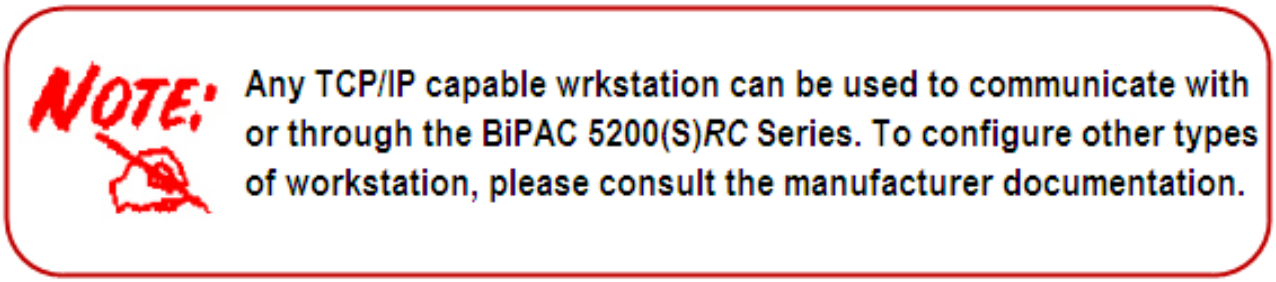
# Chapter 3
# Basic Installation

The router can be configured with your web browser. A web browser is included as a standard application in the following operating systems: Windows 7/98 / NT / 2000 / XP /Me/Vista, MAC, Linux, etc. The product provides a very easy and user-friendly interface for configuration.

## 3.1 Before Configuration

PCs must have an Ethernet interface installed properly and be connected either to the router directly or through an external repeater hub. It must also have the TCP/IP installed and configured to obtain an IP address through a DHCP server or a fixed IP address that must be in the same subnet as the router. The default IP address of the router is **192.168.1.254** and the subnet mask is **255.255.255.0** (i.e. any attached PC must be in the same subnet, and have an IP address in the range of 192.168.1.1 to 192.168.1.253). The best and easiest way is to configure the PC to get an IP address automatically from the router using DHCP. If you encounter any problem accessing the router's web interface it may also be advisable to **uninstall** any kind of software firewall on your PCs, as they can cause problem accessing the 192.168.1.254 IP address of the router. Users should make their own decision on how to best protect their networks.

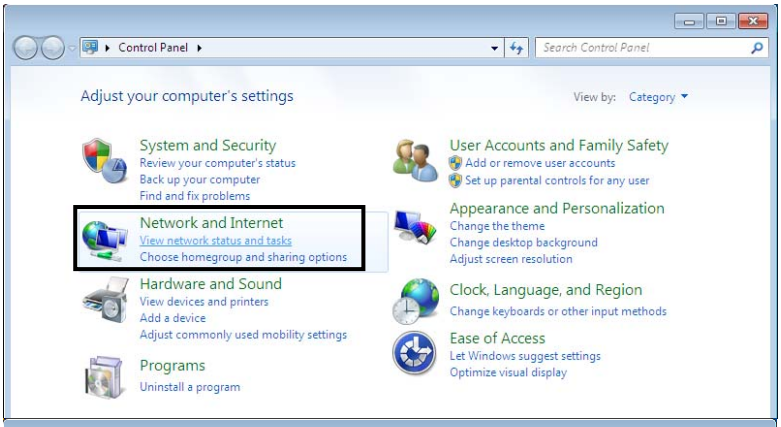
Please follow the steps below /for your PC's network environment installation. First check your PC's network components. The TCP/IP protocol stack and Ethernet network adapter must be installed. If not, please refer to your Windows-related or other operating system manuals.


NOTE:
Any TCP/IP capable wrkstation can be used to communicate with or through the BiPAC 5200(S)RC Series. To configure other types of workstation, please consult the manufacturer documentation.

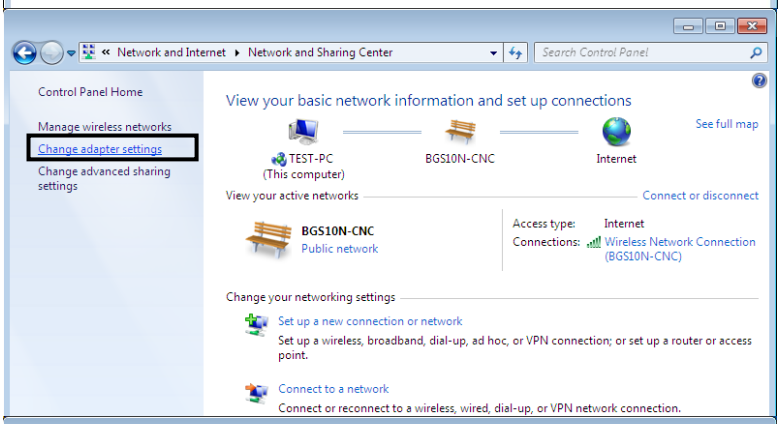
## 3.1.1 Configuring PC in Windows 7

**1.** Go to **Start**. Click on **Control Panel**.

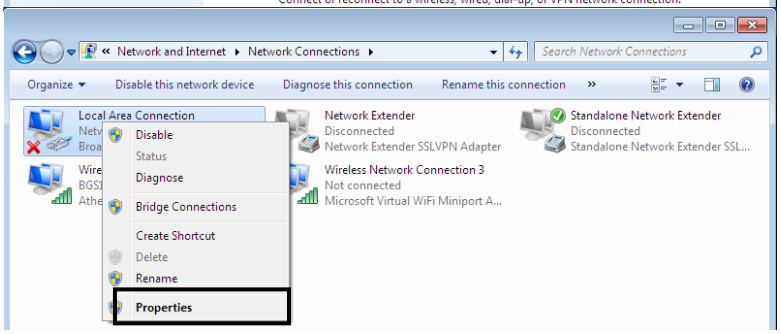
**2.** Then click on **Network and Internet**.



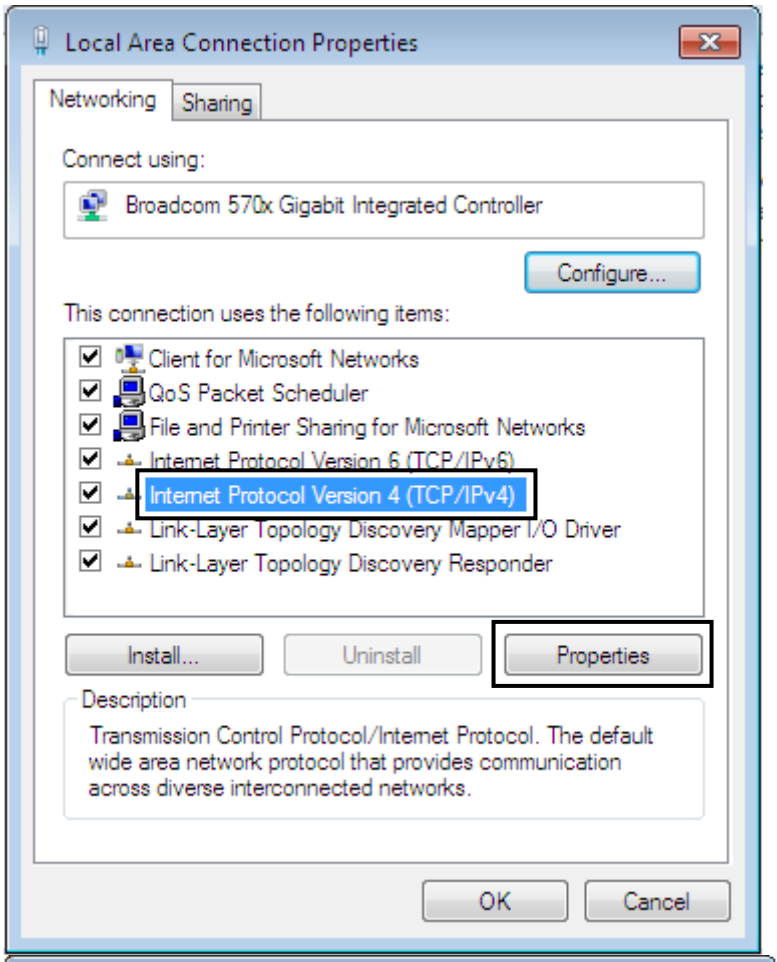

**3.** When the **Network and Sharing Center** window pops up, select and click on **Change adapter settings** on the left window panel.


Network and Internet
Network and Sharing Center
Search Control Panel
Control Panel Home
Manage wireless networks
Change adapter settings
Change advanced sharing settings
View your basic network information and set up connections
See full map
TEST-PC
(This computer)
BGS10N-CNC
Internet
View your active networks
Connect or disconnect
BGS10N-CNC
Public network
Access type: Internet
Connections: Wireless Network Connection (BGS10N-CNC)
Change your networking settings
Set up a new connection or network
Set up a wireless, broadband, dial-up, ad hoc, or VPN connection; or set up a router or access point.
Connect to a network
Connect or reconnect to a wireless, wired, dial-up, or VPN network connection.

**4.** Select the **Local Area Connection**, and right click the icon to select **Properties**.

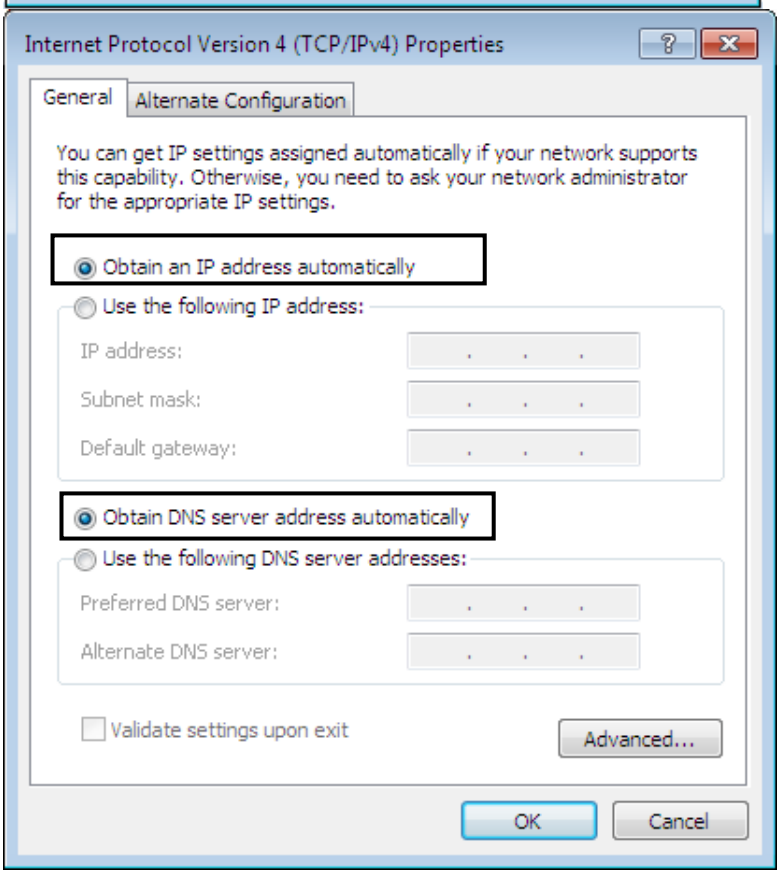


**5.** Select **Internet Protocol Version 4** (TCP/IPv4) then click **Properties**.



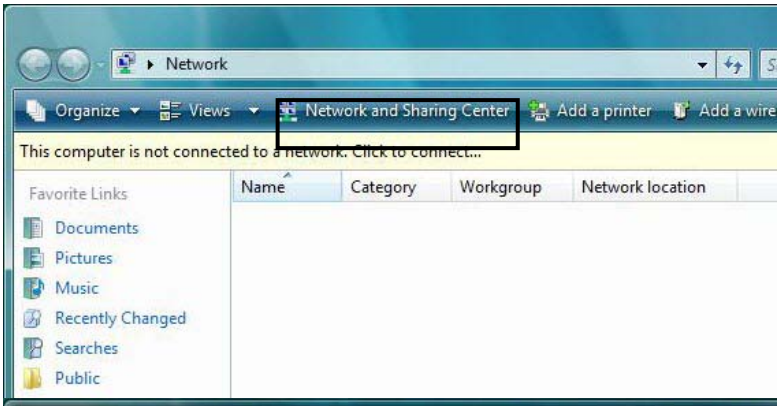

**6.** In the TCP/IPv4 properties window, select the **Obtain an IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.

**7.** Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

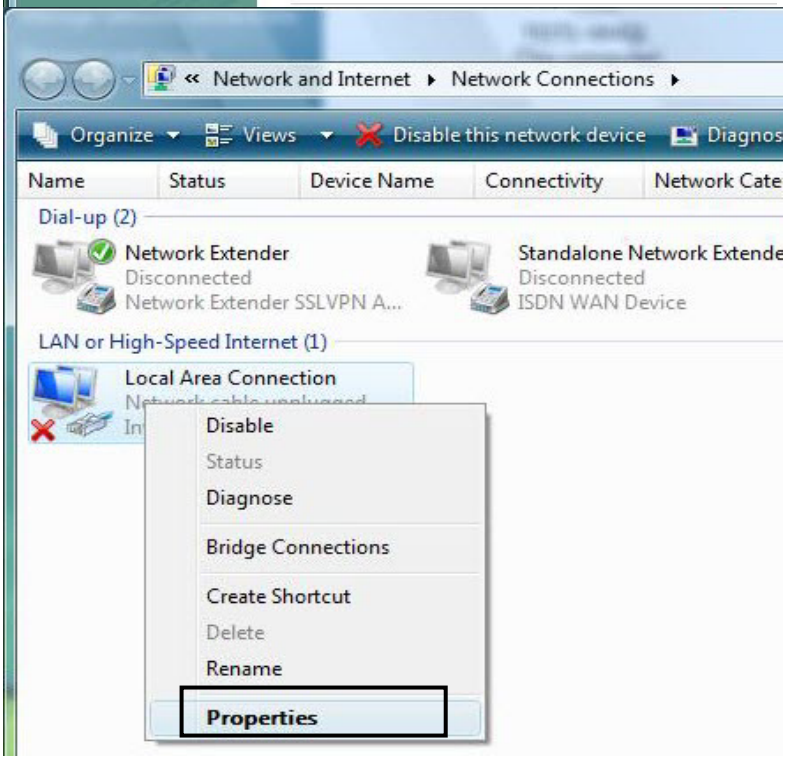
## 3.1.2 Configuring PC in Windows Vista

1. Go to **Start**. Click on **Network**.
2. Then click on **Network and Sharing Center** at the top bar.

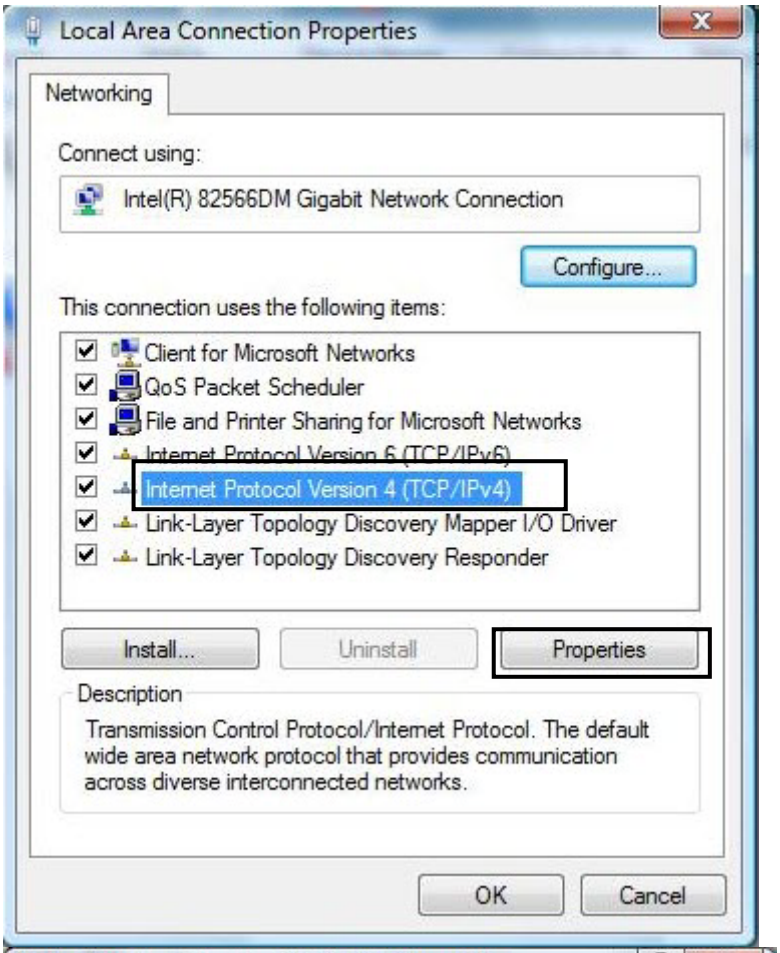



3. When the **Network and Sharing Center** window pops up, select and click on **Manage network connections** on the left window column.

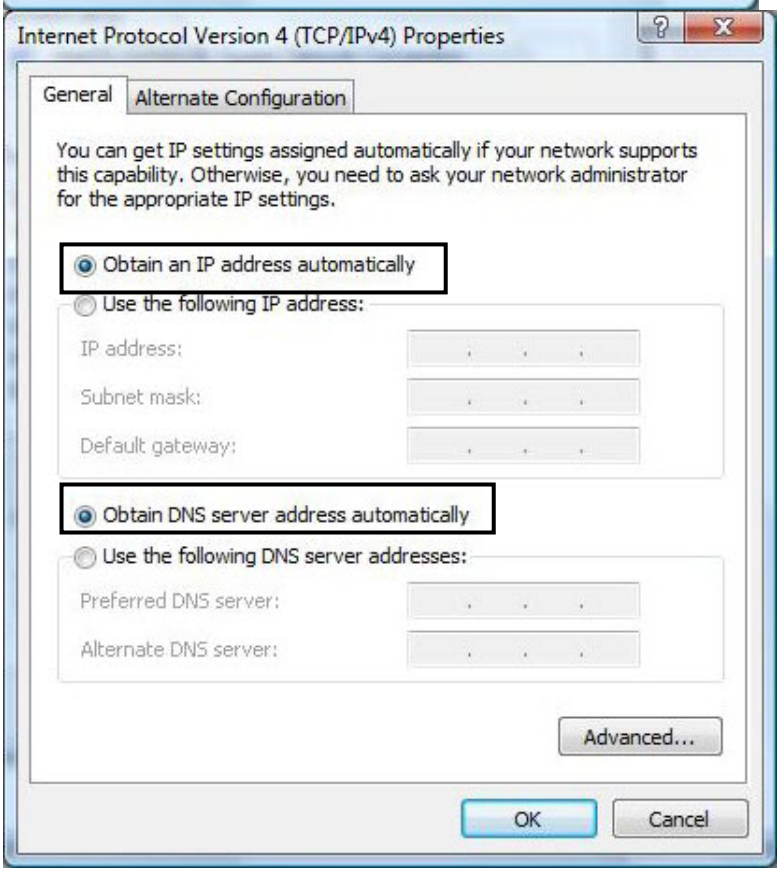
4. Select the **Local Area Connection**, and right click the icon to select **Properties**.



5. Select **Internet Protocol Version 4 (TCP/IPv4)** then click **Properties**.

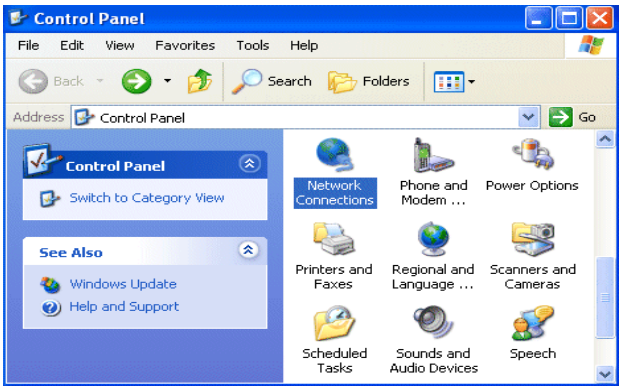



6. In the **TCP/IPv4 properties** window, select the Obtain an **IP address automatically** and **Obtain DNS Server address automatically** radio buttons. Then click **OK** to exit the setting.
7. Click **OK** again in the **Local Area Connection Properties** window to apply the new configuration.

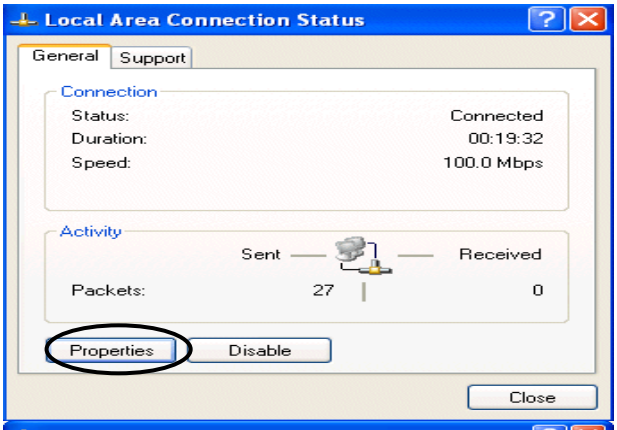

Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

### 3.1.3 Configuring PC in Windows XP

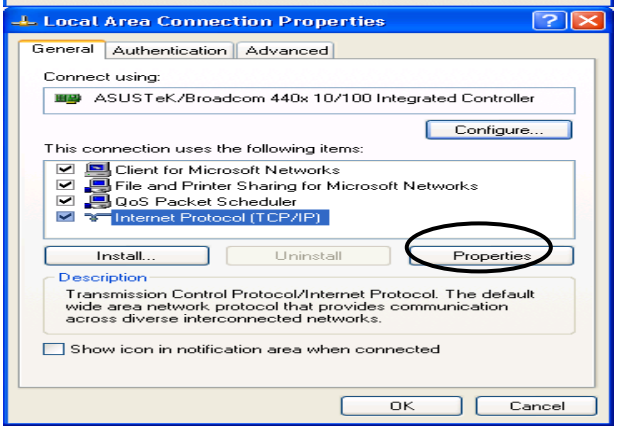
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.



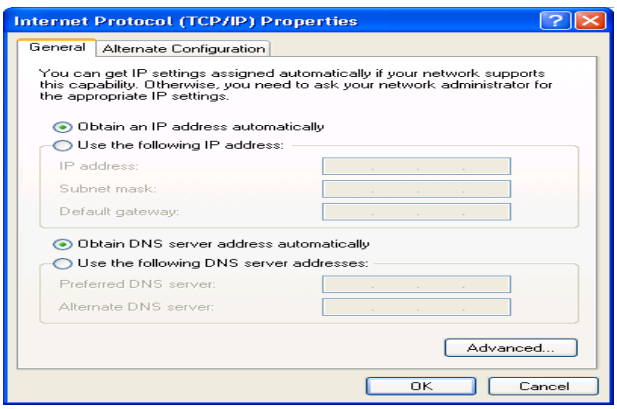

3. In the **Local Area Connection Status** window, click **Properties**.




4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

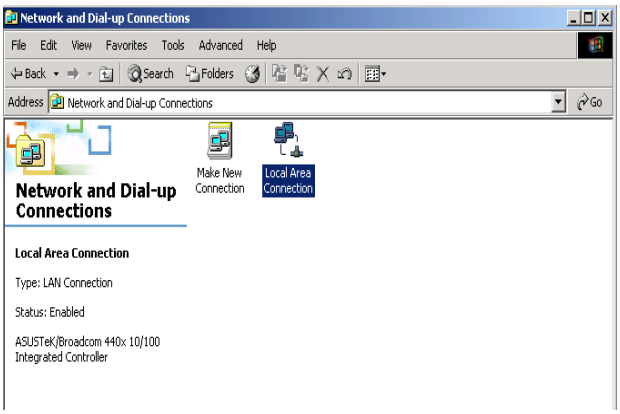

Local Area Connection Properties
General Authentication Advanced
Connect using:
ASUSTeK/Broadcom 440x 10/100 Integrated Controller
Configure...
This connection uses the following items:
Client for Microsoft Networks
File and Printer Sharing for Microsoft Networks
QoS Packet Scheduler
Internet Protocol (TCP/IP)
Install... Uninstall Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
Show icon in notification area when connected
OK Cancel

5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

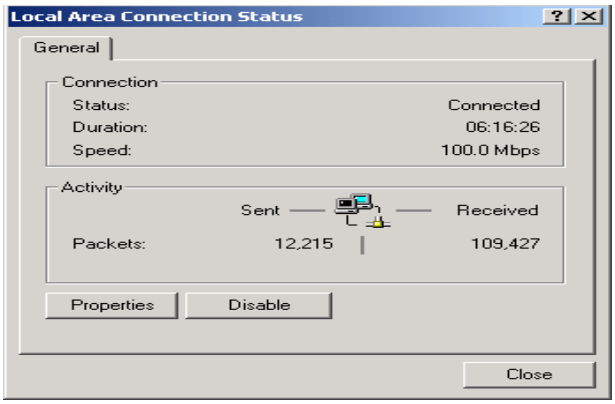

Internet Protocol (TCP/IP) Properties
General Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK Cancel

### 3.1.4 Configuring PC in Windows 2000

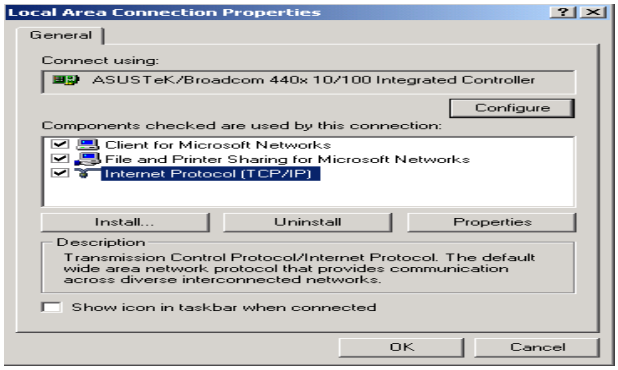
1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **Local Area Connection**.



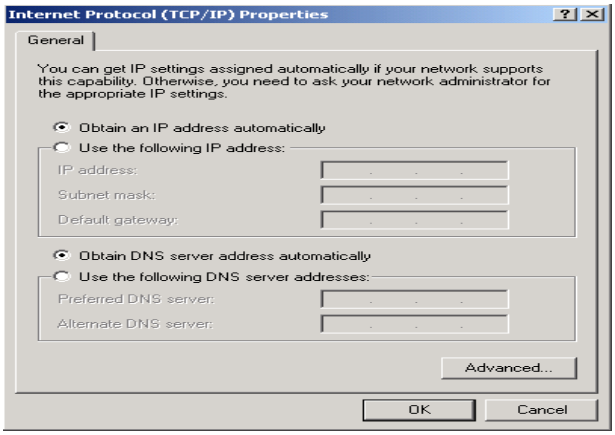

3. In the **Local Area Connection Status** window click **Properties**.




4. Select **Internet Protocol (TCP/IP)** and click **Properties**.



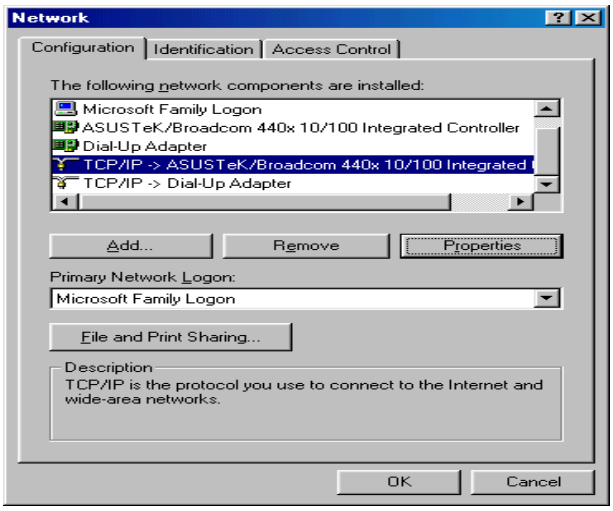

5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.


Internet Protocol (TCP/IP) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

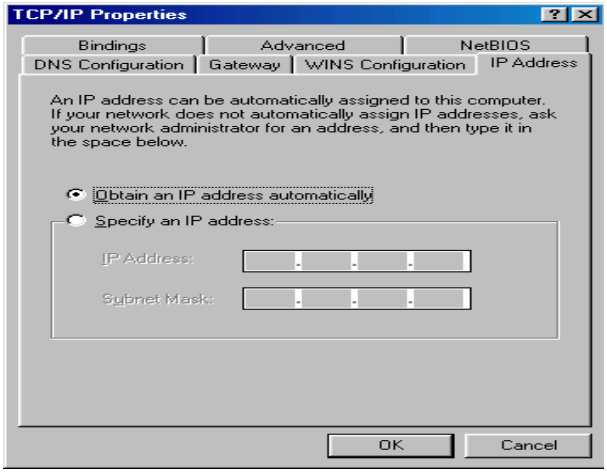
## 3.1.5 Configuring PC in Windows 98/Me

**1**. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Configuration** tab.

**2.** Select **TCP/IP ->NE2000 Compatible**, or the name of your Network Interface Card (NIC) in your PC.

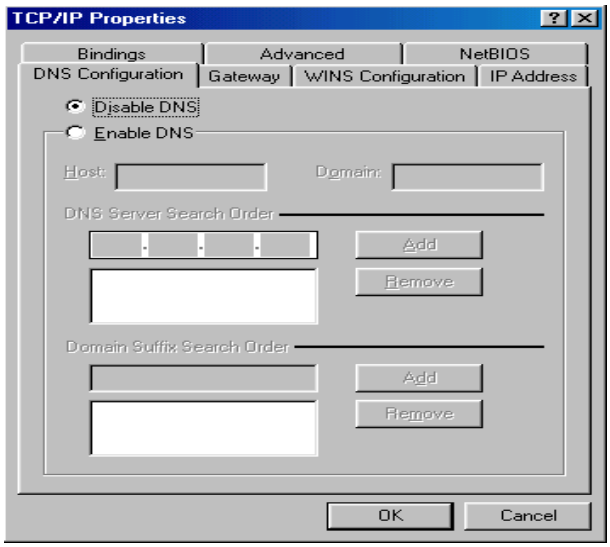



**3.** Select the **Obtain an IP address automatically** radio button.


TCP/IP Properties
Bindings
Advanced
NetBIOS
DNS Configuration
Gateway
WINS Configuration
IP Address
An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.
Obtain an IP address automatically
Specify an IP address:
IP Address:
Subnet Mask:
OK
Cancel

**4.** Then select the **DNS Configuration** tab.

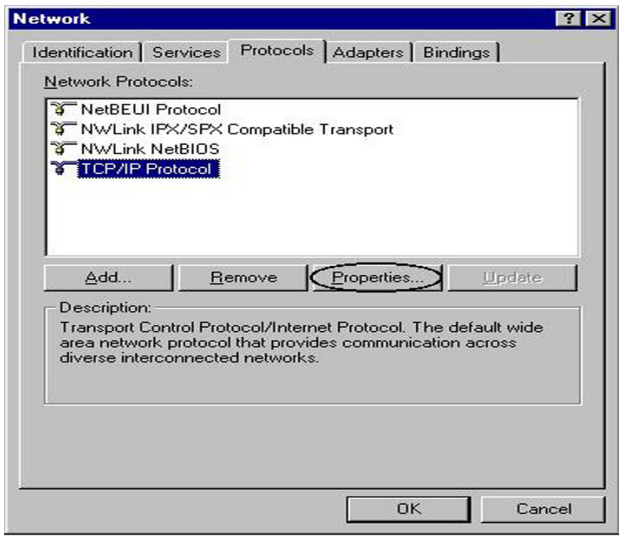
**5.** Select the **Disable DNS** radio button and click **OK** to finish the configuration.



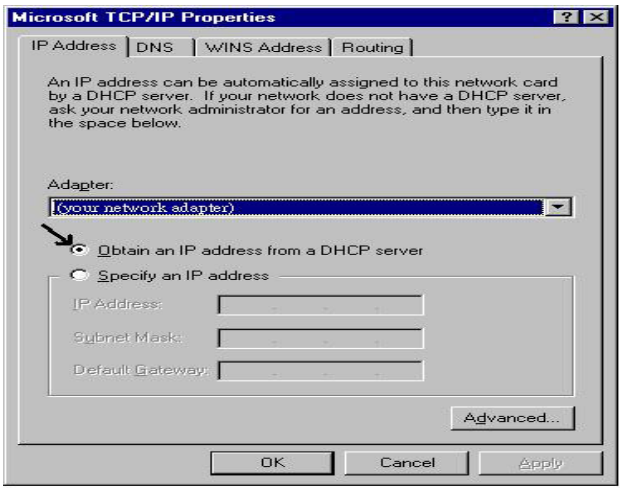
### 3.1.6 Configuring PC in Windows NT4.0

**1.** Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network** and choose the **Protocols** tab.

**2.** Select **TCP/IP Protocol** and click **Properties**.

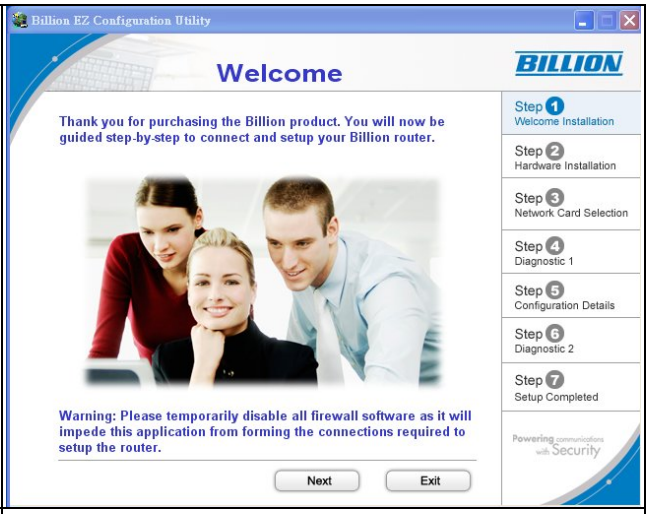



**3.** Select the **Obtain an IP address from a DHCP server** radio button and click **OK**.

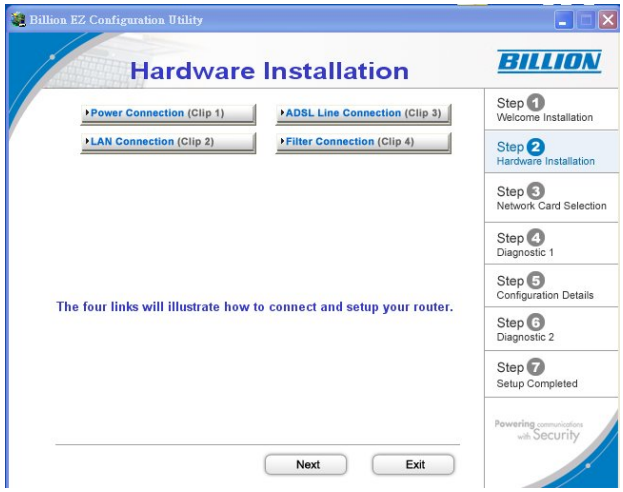

Microsoft TCP/IP Properties
IP Address
DNS
WINS Address
Routing
An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.
Adapter:
[your network adapter]
Obtain an IP address from a DHCP server
Specify an IP address
IP Address:
Subnet Mask:
Default Gateway:
Advanced...
OK
Cancel
Apply

## 3.2 Step-by-Step Installation

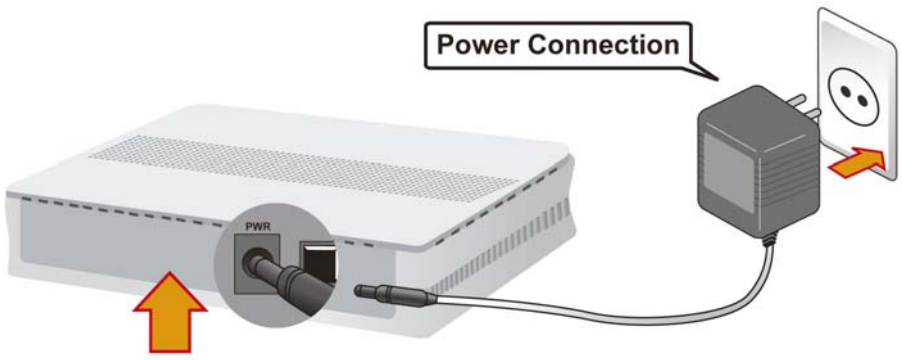
**1.** Insert the CD-ROM into CD-ROM drive
**2.** Execute Windows Utility
**3.** The Welcome screen will appear, click Next


Billion EZ Configuration Utility
Welcome
BILLION
Thank you for purchasing the Billion product. You will now be guided step-by-step to connect and setup your Billion router.
Warning: Please temporarily disable all firewall software as it will impede this application from forming the connections required to setup the router.
Next
Exit
Step 1 Welcome Installation
Step 2 Hardware Installation
Step 3 Network Card Selection
Step 4 Diagnostic 1
Step 5 Configuration Details
Step 6 Diagnostic 2
Step 7 Setup Completed

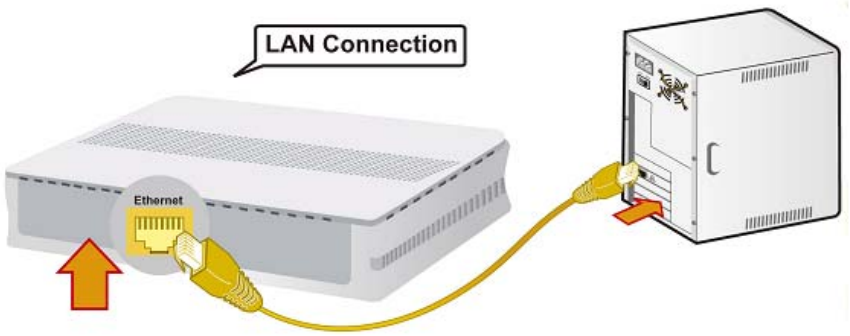
**4.** The Hardware Installation screen will appear. Four links are shown on the screen. Click them one by one and follow the guidelines to complete hardware installation.



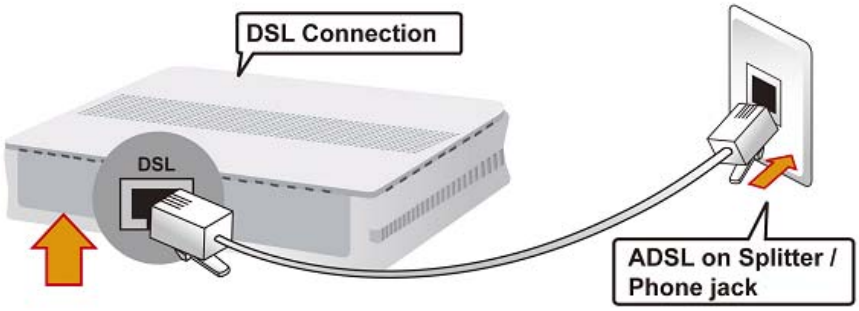

4.1 Power connection



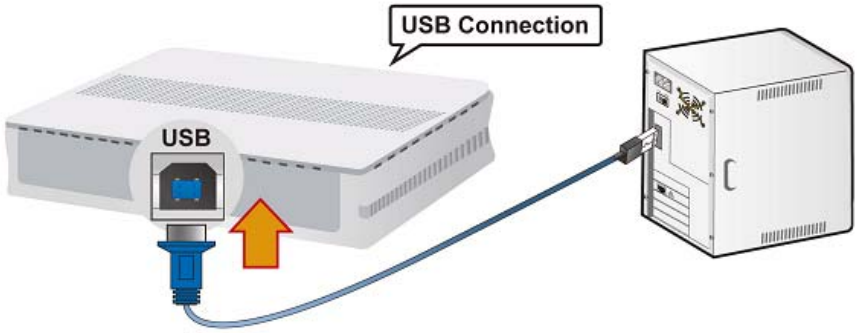
4.2 LAN connection



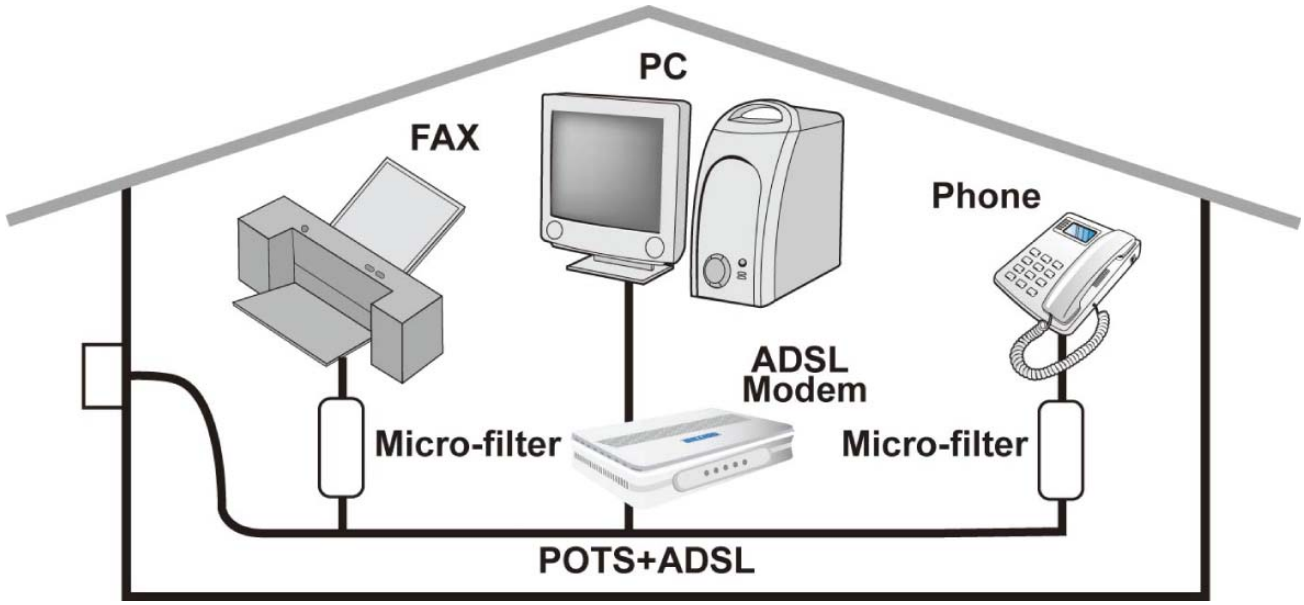

4.3 DSL Line connection



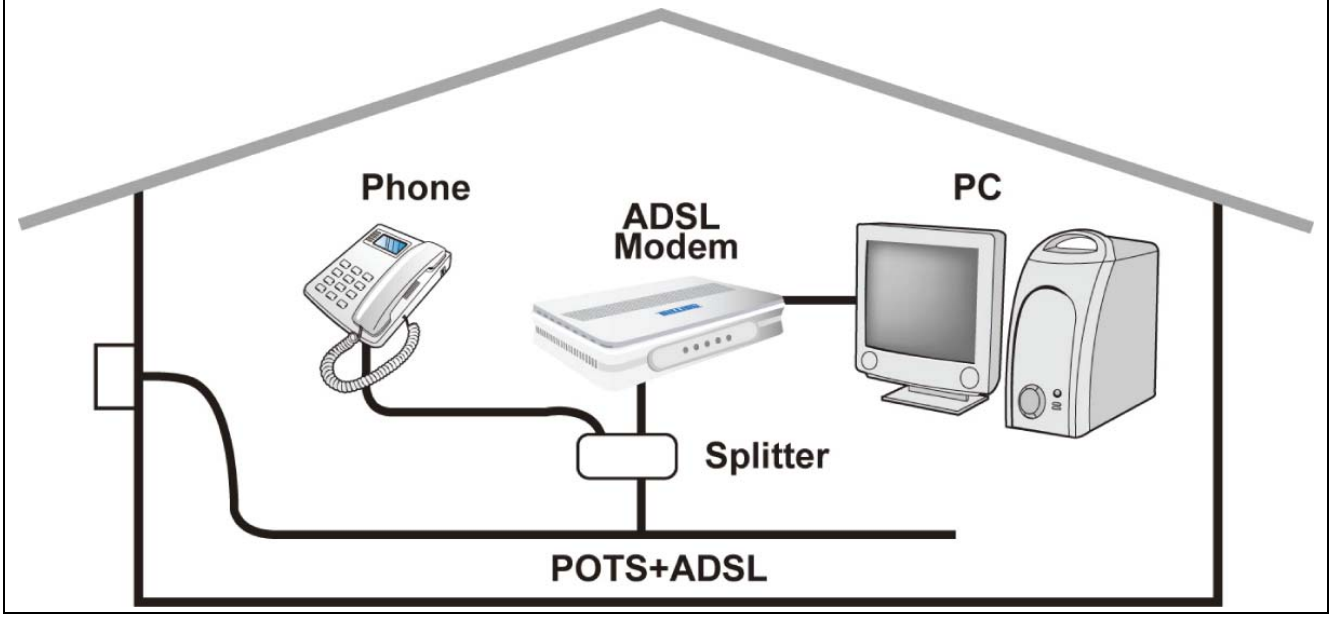

4.4 USB connection (**Only available for 5210S *RC*)**



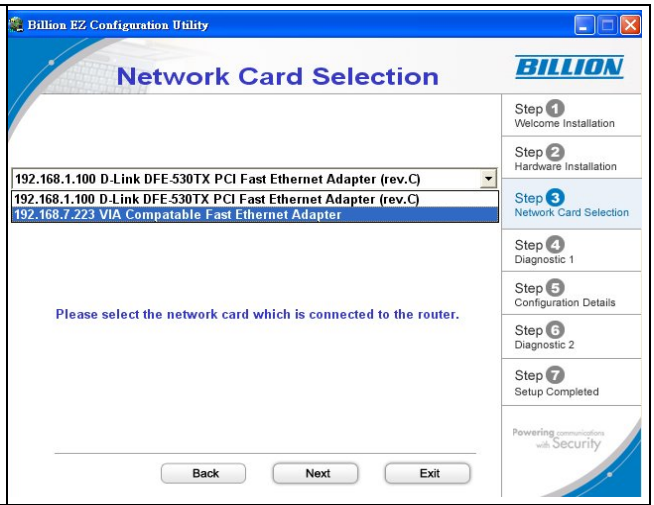
4.5 Filter connection




4.6 Splitter connection



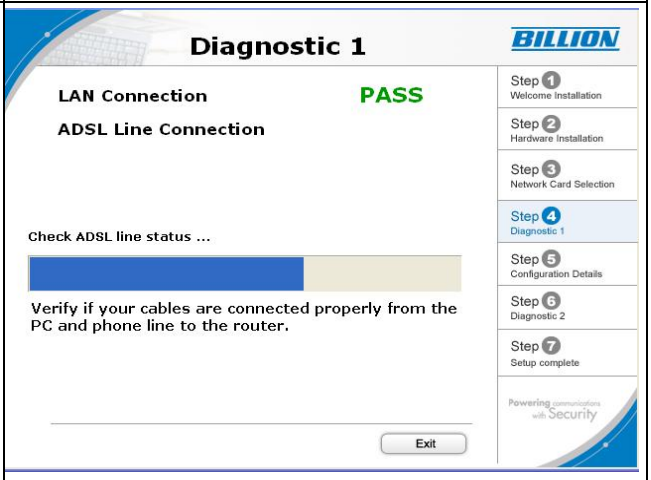
**5.** When finished the Hardware Installation, click “Next” to proceed to next step, Network Card Selection.


Billion EZ Configuration Utility
Network Card Selection
192.168.1.100 D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.C)
192.168.1.100 D-Link DFE-530TX PCI Fast Ethernet Adapter (rev.C)
192.168.7.223 VIA Compatable Fast Ethernet Adapter
Please select the network card which is connected to the router.
Back
Next
Exit
Step 1 Welcome Installation
Step 2 Hardware Installation
Step 3 Network Card Selection
Step 4 Diagnostic 1
Step 5 Configuration Details
Step 6 Diagnostic 2
Step 7 Setup Completed

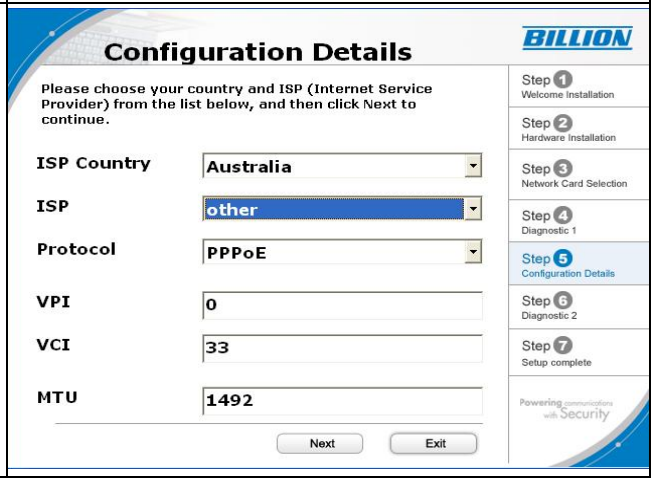
**6.** Diagnostic screen.

(If connection fails, the screen will show **“FAIL”,** please check your router if it is connected correctly.)

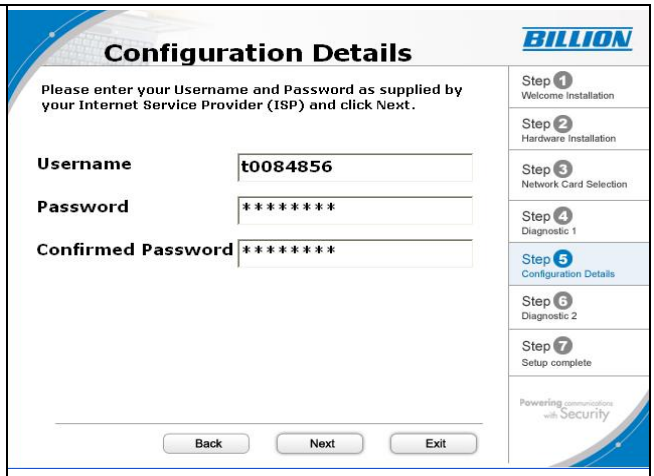
**7.** Click Next to enter Configuration Details


Diagnostic 1
LAN Connection
PASS
ADSL Line Connection
Check ADSL line status ...
Verify if your cables are connected properly from the PC and phone line to the router.
Exit
Step 1 Welcome Installation
Step 2 Hardware Installation
Step 3 Network Card Selection
Step 4 Diagnostic 1
Step 5 Configuration Details
Step 6 Diagnostic 2
Step 7 Setup complete

**8.** Set up more detailed settings such as VPI, VCI and MTU.

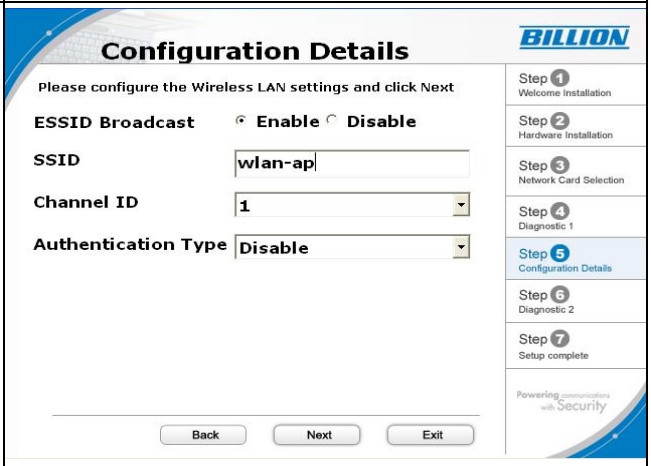


**9.** Please enter **"Username"** and **"Password"** as supplied by your ISP (Internet Service Provider) and click next.

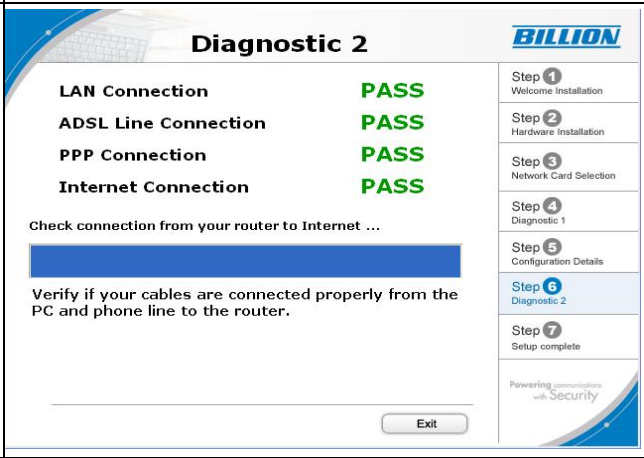



**10.** Please configure the Wireless LAN setting and click next.

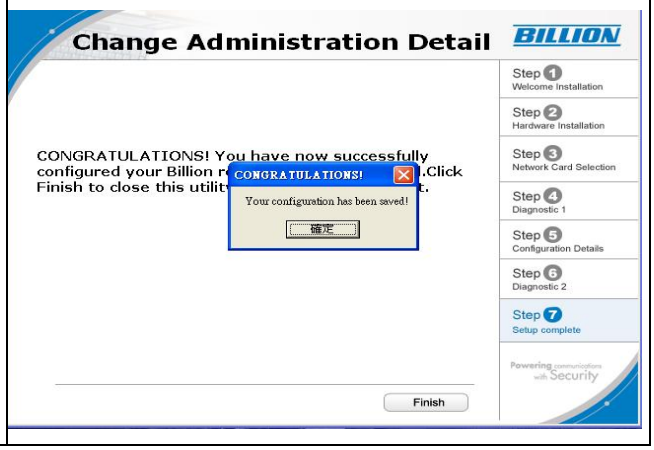
(If your router does not support wireless, please ignore this screen and it will not appear.)




**11.** Click Next to proceed to Diagnostic screen


Diagnostic 2
BILLION
LAN Connection PASS
ADSL Line Connection PASS
PPP Connection PASS
Internet Connection PASS
Check connection from your router to Internet ...
Verify if your cables are connected properly from the PC and phone line to the router.
Exit
Step 1 Welcome Installation
Step 2 Hardware Installation
Step 3 Network Card Selection
Step 4 Diagnostic 1
Step 5 Configuration Details
Step 6 Diagnostic 2
Step 7 Setup complete

**12.** Congratulations!! You've completed the setup procedure and are ready to surf the Internet.



| | |
|---|---|
| **13.** The IE browser will open up automatically when you finish installing. | |

## 3.3 Factory Default Settings

Before configuring your router, you need to know the following default settings.

- **Web Interface**
  - Username: admin
  - Password: admin
- **LAN Device IP Settings**
  - IP Address: 192.168.1.254
  - Subnet Mask: 255.255.255.0
- **ISP setting in WAN site**
  - PPPoE
- **DHCP server**
  - DHCP server is enabled.
  - Start IP Address: 192.168.1.100
  - IP pool counts: 100

### 3.3.1 Username and Password

The default username and password are “**admin**” and “**admin**” respectively.

**Attention**

If you ever forget the login password, please press the reset button for more than 6 seconds to restore the factory default settings.

## 3.4 LAN and WAN Port Addresses

The parameters of LAN and WAN ports are preset in the factory. The default values are shown below.

| LAN Port | | WAN Port |
|---|---|---|
| **IP address** | 192.168.1.254 | The PPPoE function is enabled to automatically get the WAN port configuration from the ISP. |
| **Subnet Mask** | 255.255.255.0 | |
| **DHCP server function** | Enabled | |
| **IP addresses for distribution to PCs** | 100 IP addresses continuing from 192.168.1.100 through 192.168.1.199 | |

## 3.5 Information from your ISP

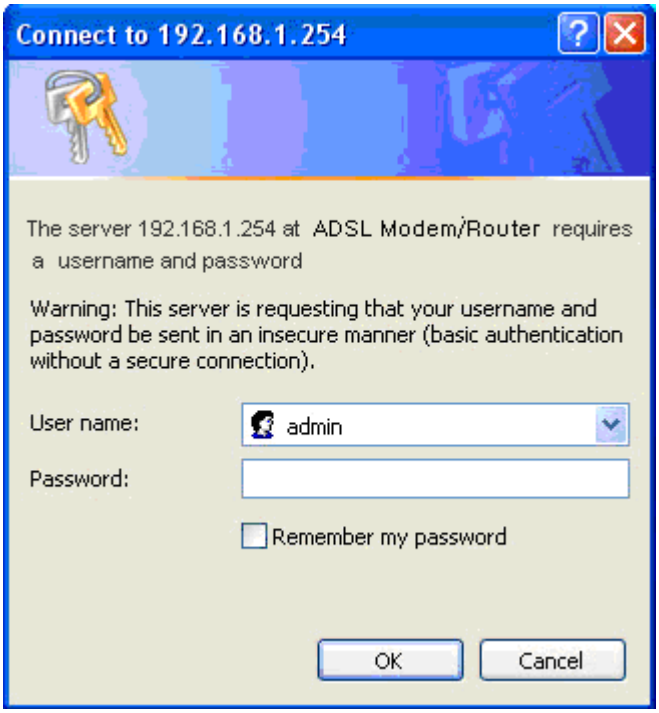
Before configuring this device, you have to check with your ISP (Internet Service Provider) what kind of service is provided such as PPPoE, PPPoA, RFC1483, or IPoA.

Gather the information as illustrated in the following table and keep it for reference.

| | |
|---|---|
| **PPPoE** | VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, Service Name, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually). |
| **PPPoA** | VPI/VCI, VC-based/LLC-based multiplexing, Username, Password, and Domain Name System (DNS) IP address (it can be automatically assigned by your ISP when you connect or be set manually). |
| **RFC1483 Bridged** | VPI/VCI, VC-based/LLC-based multiplexing to use Bridged Mode. |
| **RFC1483 Routed** | VPI/VCI, VC-based/LLC-based multiplexing, IP address, Subnet mask, Gateway address, and Domain Name System (DNS) IP address (it is fixed IP address). |

## 3.6 Configuring with your Web Browser

Open your web browser, enter the IP address of your router, which by default is **192.168.1.254**, and click "**Go**", a user name and password prompt window will appear. **The default username and password are "admin" and "admin" respectively.**


Connect to 192.168.1.254
The server 192.168.1.254 at ADSL Modem/Router requires a username and password
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
User name:
admin
Password:
Remember my password
OK
Cancel

**Congratulation! You are now successfully logged in to the BiPAC 5200S *RC* Series ADSL2+ Router!**

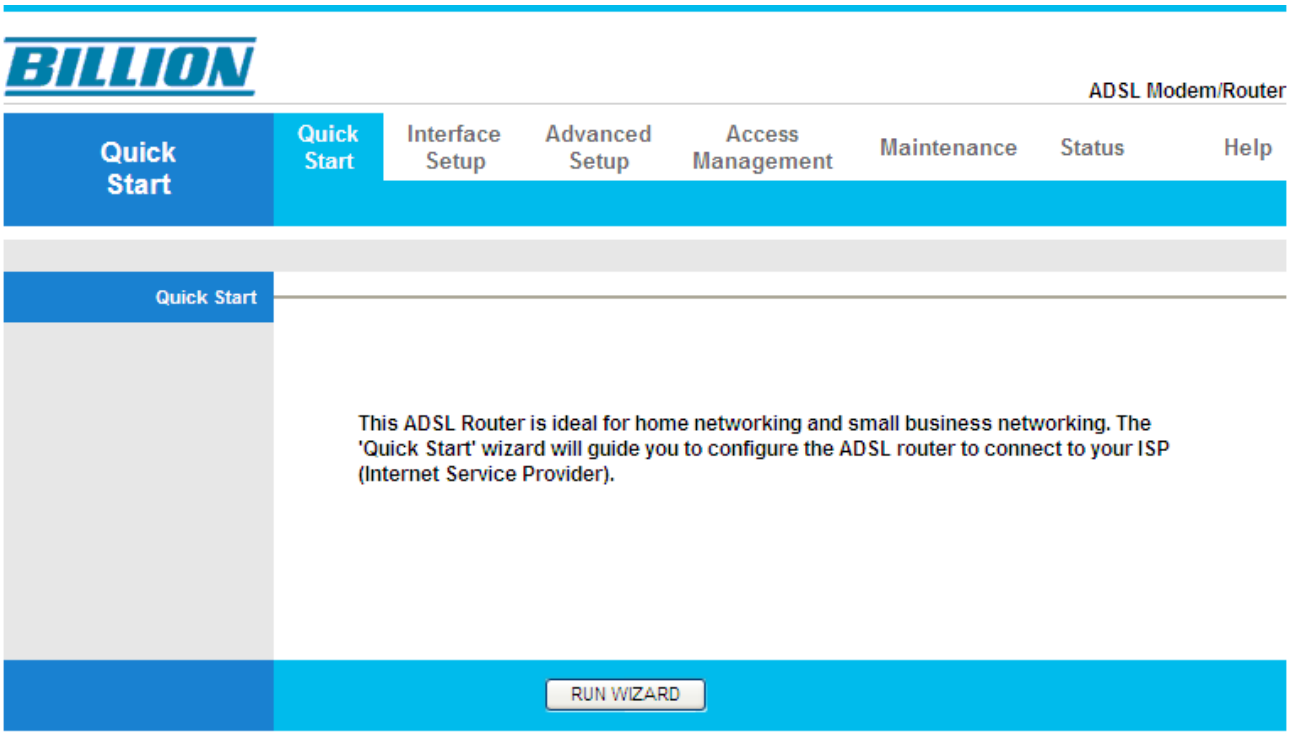
# Chapter 4
# Configuration

At the configuration homepage, the top navigation pane where bookmarks are provided links to lead you directly to the desired setup page, including:

- **Quick Start** (Wizard Setup)
- **Interface Setup** (Internet, LAN)
- **Advanced Setup** (Firewall, Routing, NAT, ADSL)
- **Access Management** (ACL, Filter, SNMP, UPnP, DDNS)
- **Maintenance** (Administration, Time Zone, Firmware, SysRestart, Diagnositics)
- **Status** (Device Info, System Log, Statistics)
- **Help**

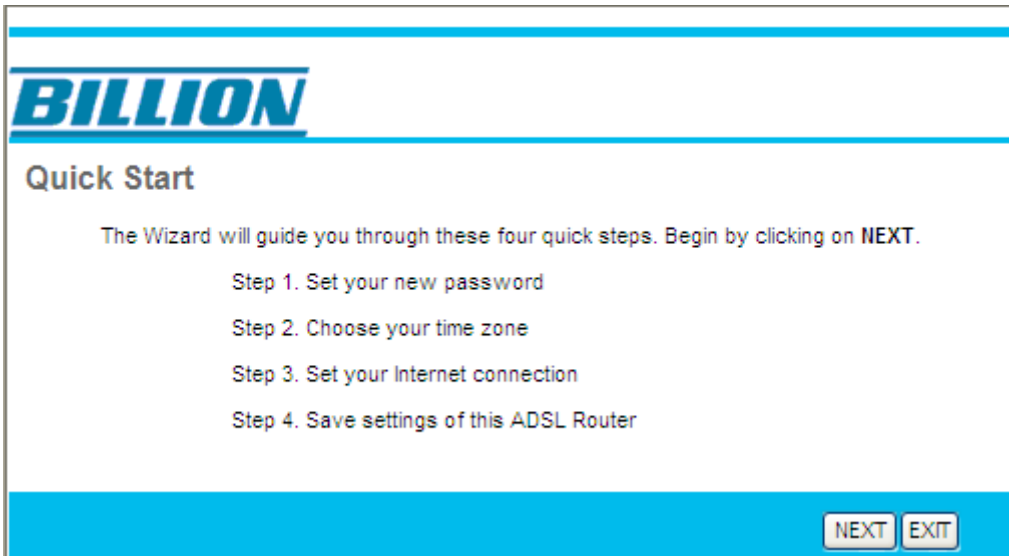
Please see the relevant sections of this manual for detailed instructions on how to configure your Billion router.

## 4.1 Quick Start

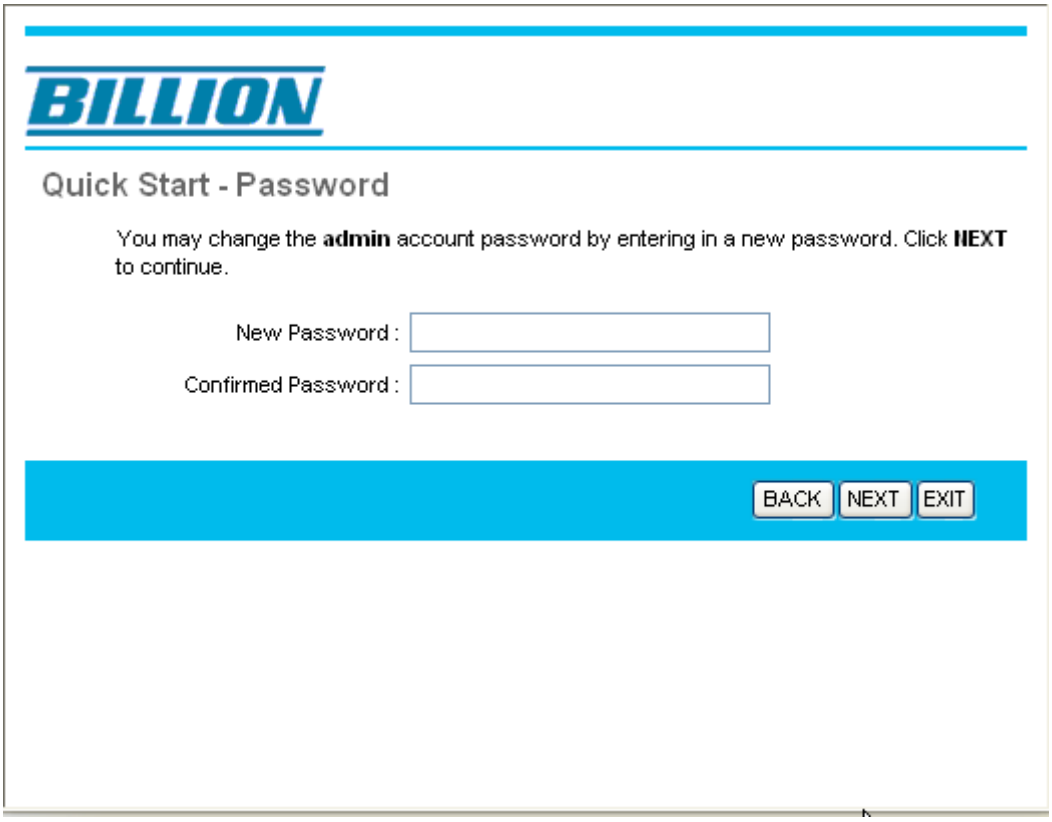

BILLION
ADSL Modem/Router
Quick Start
Quick Start
Interface Setup
Advanced Setup
Access Management
Maintenance
Status
Help
Quick Start
This ADSL Router is ideal for home networking and small business networking. The 'Quick Start' wizard will guide you to configure the ADSL router to connect to your ISP (Internet Service Provider).
RUN WIZARD

For detailed instructions on configuring WAN settings, see the **Interface Setup** section of this manual.

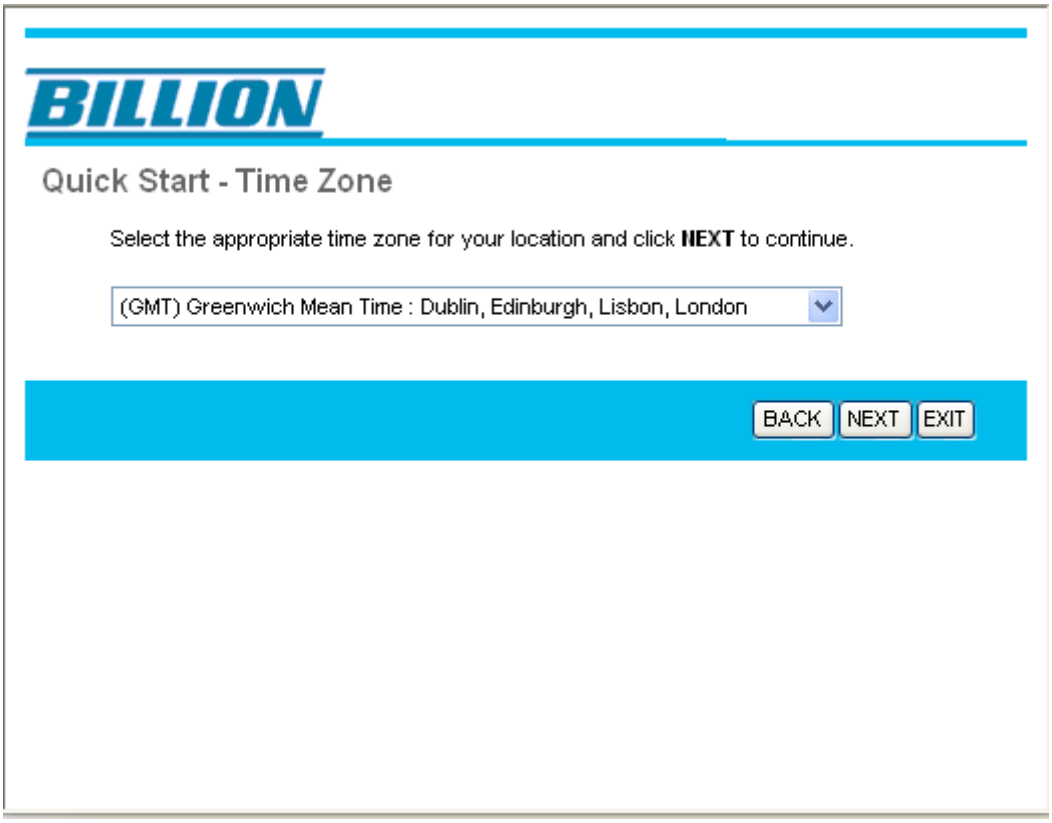
The Quick Start Wizard is a useful and easy utility to help setup the device to connect to your ISP (Internet Service Provider) with only a few steps required. It will guide you step by step to configure the password, time zone, and WAN settings of your device. The Quick Start Wizard is a helpful guide for first time users to the device.


BILLION
Quick Start
The Wizard will guide you through these four quick steps. Begin by clicking on NEXT.
Step 1. Set your new password
Step 2. Choose your time zone
Step 3. Set your Internet connection
Step 4. Save settings of this ADSL Router
NEXT
EXIT

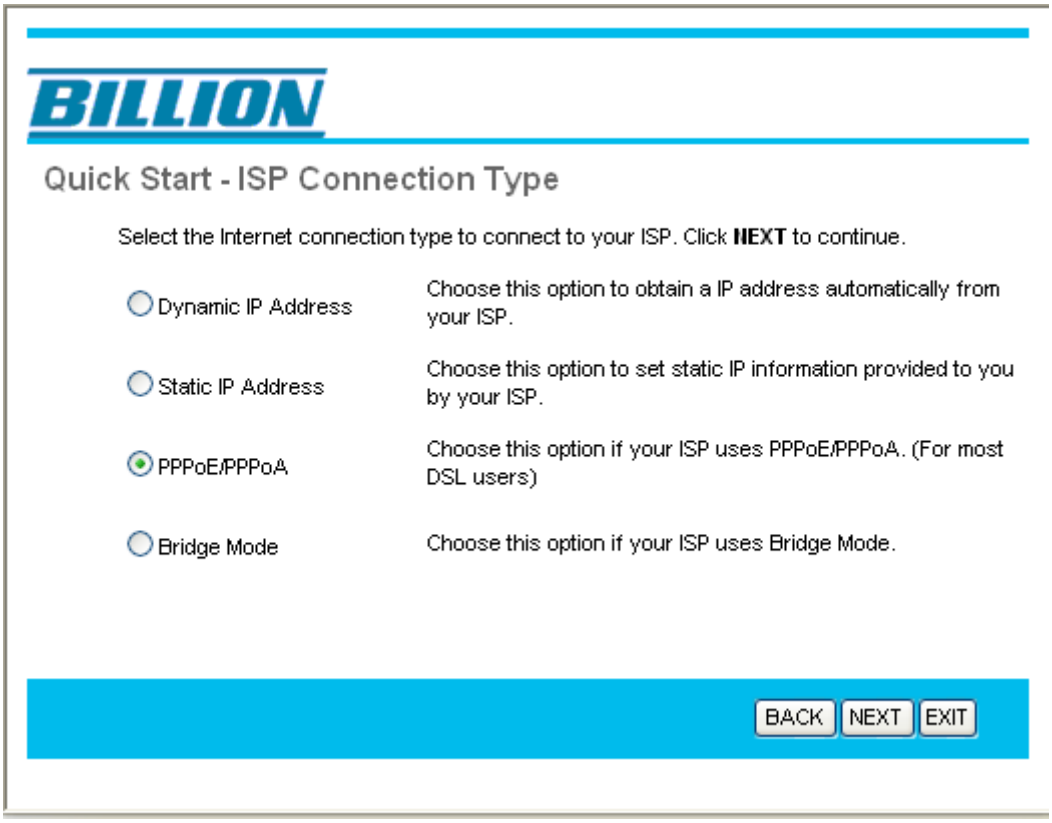
**Step1.** Set your new password.

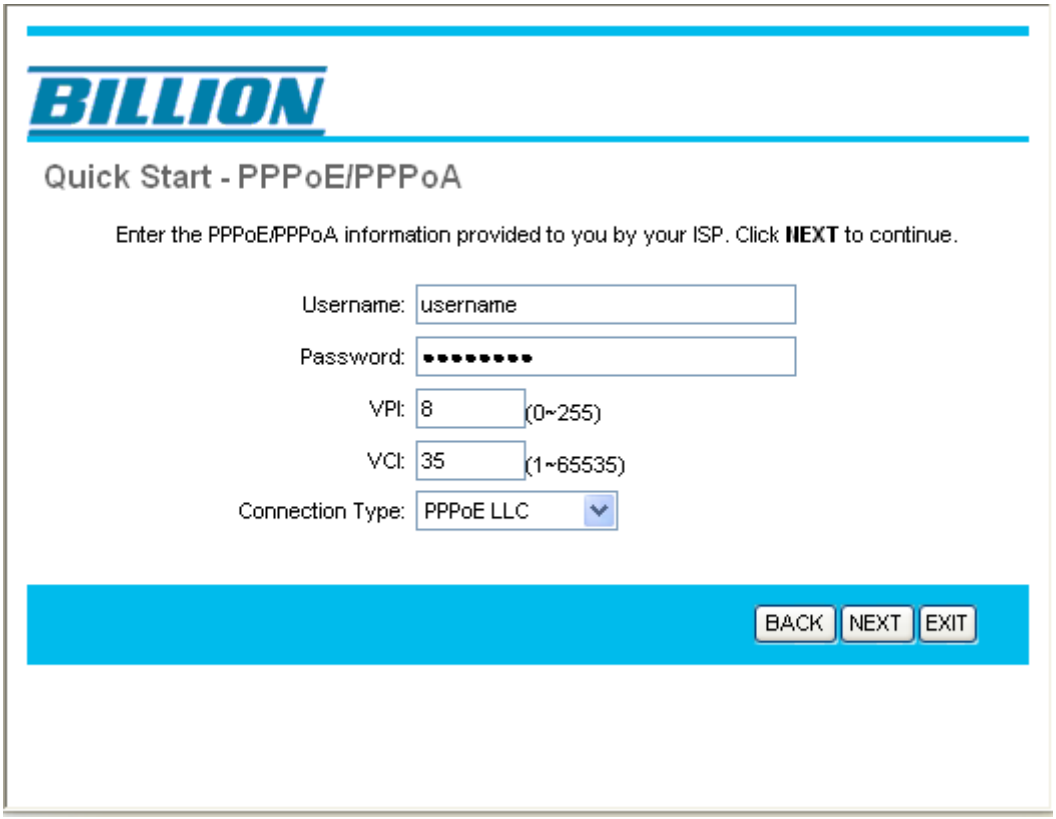



**Step2:** Choose your time zone.


BILLION
Quick Start - Time Zone
Select the appropriate time zone for your location and click NEXT to continue.
(GMT) Greenwich Mean Time : Dublin, Edinburgh, Lisbon, London
BACK
NEXT
EXIT

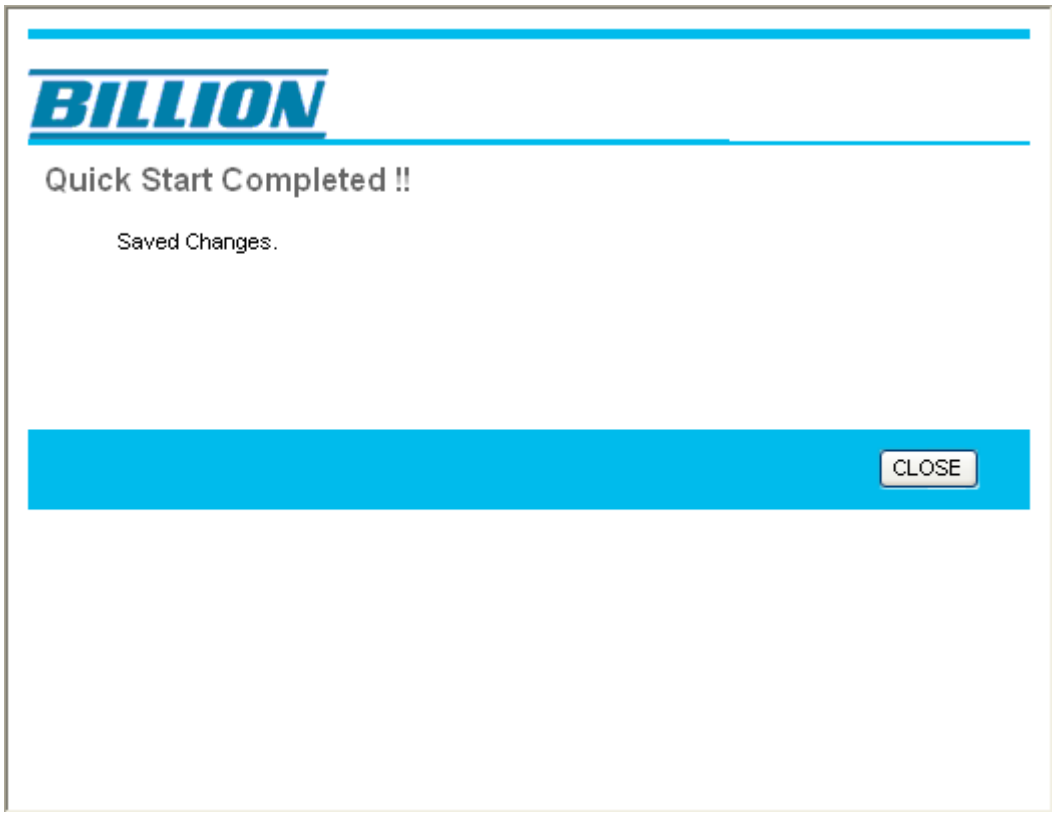
**Step3:** Set your Internet connection.


BILLION
Quick Start - ISP Connection Type
Select the Internet connection type to connect to your ISP. Click NEXT to continue.
Dynamic IP Address
Choose this option to obtain a IP address automatically from your ISP.
Static IP Address
Choose this option to set static IP information provided to you by your ISP.
PPPoE/PPPoA
Choose this option if your ISP uses PPPoE/PPPoA. (For most DSL users)
Bridge Mode
Choose this option if your ISP uses Bridge Mode.
BACK
NEXT
EXIT



**Step4:** Save settings of this ADSL Router.

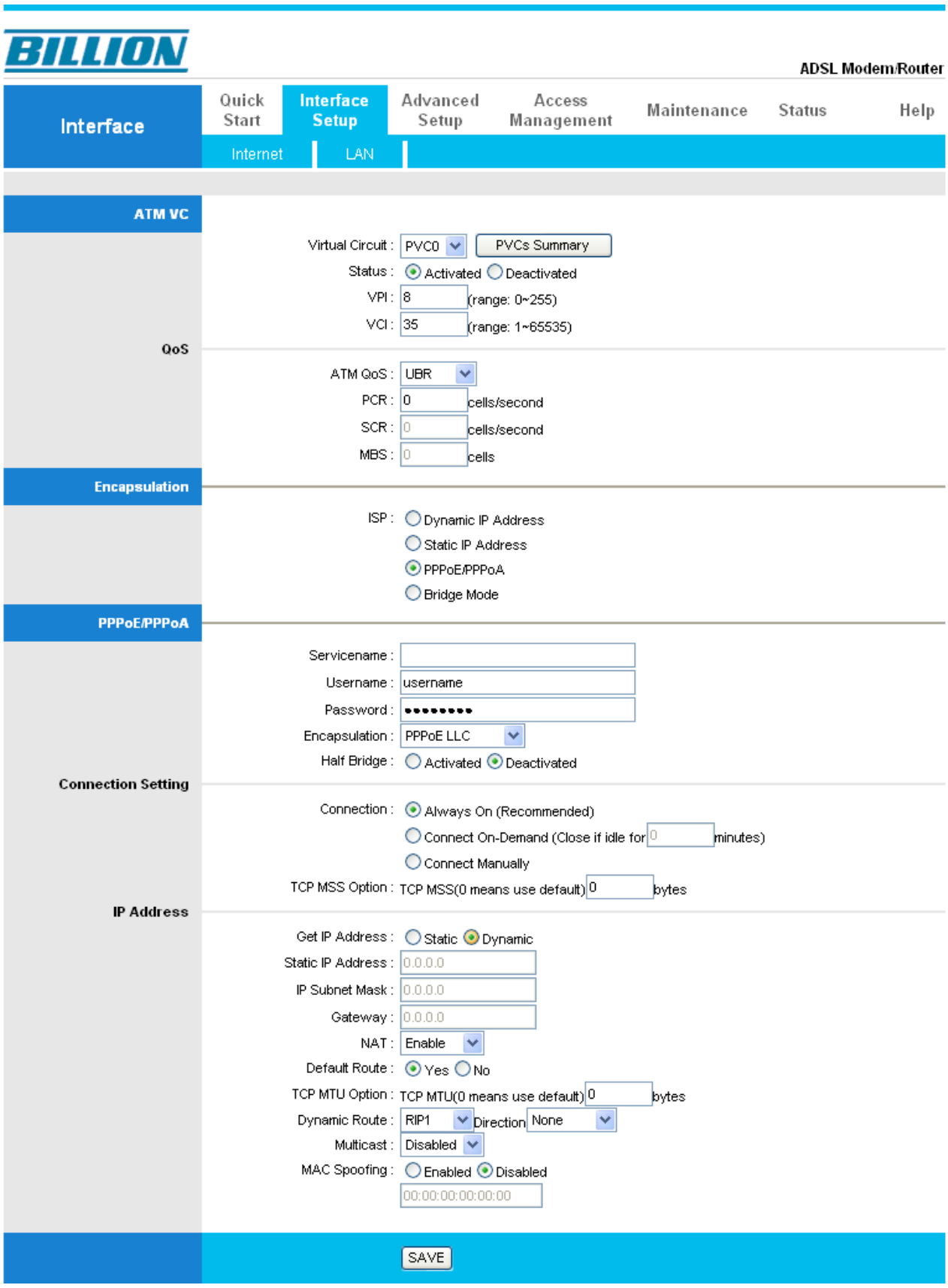
BILLION
Quick Start Complete !!
The Setup Wizard has completed. Click on BACK to modify changes or mistakes. Click NEXT to save the current settings.
BACK
NEXT
EXIT



## 4.2 Interface Setup

Click this item to access the following sub-items to configure the ADSL2+ router: **Internet** and **LAN.**
These functions are described in the following sections.

## 4.2.1 Internet



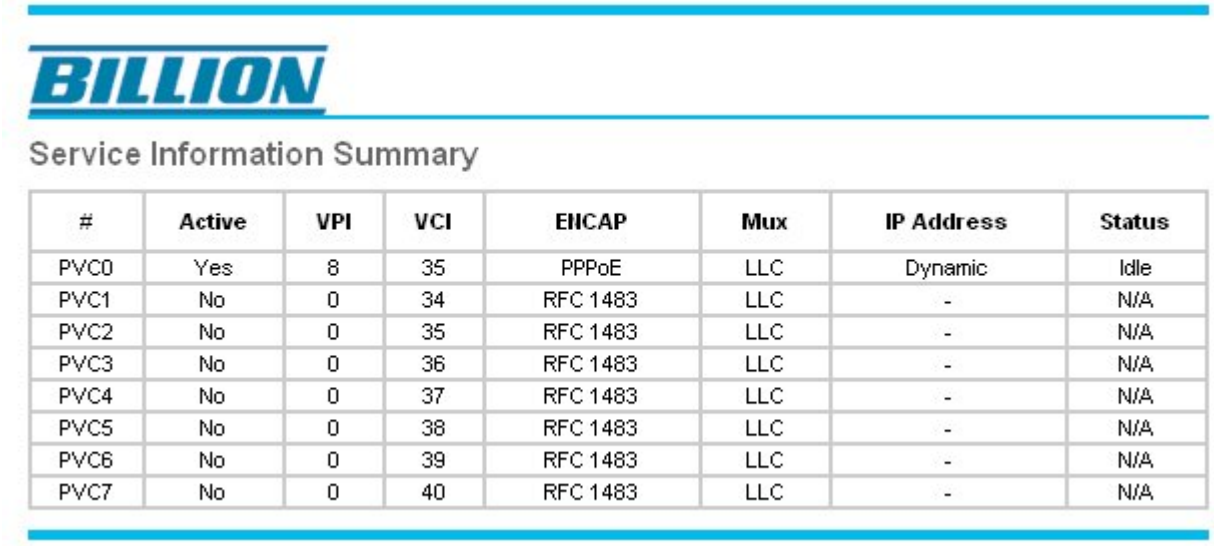
## ATM VC

ATM settings are used to connect to your ISP. Your ISP provides VPI, VCI settings to you. In this Device, you can totally setup 8 VCs on different encapsulations, if you apply 8 different virtual circuits from your ISP. You need to activate the VC to take effect.

For PVCs management, you can use ATM QoS to setup each PVC traffic line's priority.

**Virtual Circuit:** VPI (Virtual Path Identifier) and VCI (Virtual Channel Identifier) define a virtual circuit.

**PVC Summary:**



BILLION

Service Information Summary

| # | Active | VPI | VCI | ENCAP | Mux | IP Address | Status |
|---|---|---|---|---|---|---|---|
| PVC0 | Yes | 8 | 35 | PPPoE | LLC | Dynamic | Idle |
| PVC1 | No | 0 | 34 | RFC 1483 | LLC | - | N/A |
| PVC2 | No | 0 | 35 | RFC 1483 | LLC | - | N/A |
| PVC3 | No | 0 | 36 | RFC 1483 | LLC | - | N/A |
| PVC4 | No | 0 | 37 | RFC 1483 | LLC | - | N/A |
| PVC5 | No | 0 | 38 | RFC 1483 | LLC | - | N/A |
| PVC6 | No | 0 | 39 | RFC 1483 | LLC | - | N/A |
| PVC7 | No | 0 | 40 | RFC 1483 | LLC | - | N/A |

**VPI:** The valid range for the VPI is 0 to 255. Enter the VPI assigned to you. This field may already be configured.

**VCI:** The valid range for the VCI is 1 to 65535. Enter the VCI assigned to you. This field may already be configured.

**ATM QoS:** Select the Quality of Service types for this Virtual Circuit. The ATM QoS types include CBR (Constant Bit Rate), VBR (Variable Bit Rate) and UBR (Unspecified Bit Rate). These QoS types are all controlled by the parameters specified below, including PCR, SCR and MBS.

Select **CBR** to specify fixed (always-on) bandwidth for voice or data traffic. Select **UBR** for applications that are non-time sensitive, such as e-mail. Select **VBR** for burst traffic and bandwidth sharing with other applications.

**PCR:** Divide the DSL line rate (bps) by 424 (the size of an ATM cell) to find the Peak Cell Rate (PCR). This is the maximum rate at which the sender can send cells.

**SCR:** The Sustain Cell Rate (SCR) sets the average cell rate (long-term) that can be transmitted.

**MBS:** Maximum Burst Size (MBS) refers to the maximum number of cells that can be sent at the peak rate. Type the MBS, which is less than 65535

**Encapsulation:**

**ISP:** Select the encapsulation type your ISP uses from the **Encapsulation** list.

Choices vary depending on what you select in the **Mode** field.

**Dynamic IP:** Select this option if your ISP provides you an IP address automatically. This option is typically used for Cable services. Please enter the Dynamic IP information accordingly.

**Static IP:** Select this option to set static IP information. You will need to enter in the Connection type, IP address, subnet mask, and gateway address, provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which is four IP octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

**PPPoE/PPPoA:** Select this option if your ISP requires you to use a PPPoE connection. This option is typically used for DSL services. Select Dynamic PPPoE to obtain an IP address automatically for your PPPoE connection. Select Static PPPoE to use a static IP address for your PPPoE connection. Please enter the information accordingly.

**Bridge Mode:** Mainly use the MAC address to determine whether to forward data, in this way, the router works like a switch. Select this mode if your ISP uses this mode.

**PPPoE/PPPoA**

Select this option if your ISP requires you to use a PPPoE connection. This option is typically used for DSL services. Select Dynamic PPPoE to obtain an IP address automatically for your PPPoE connection. Select Static PPPoE to use a static IP address for your PPPoE connection. Please enter the information accordingly.

**User Name:** Enter the user name exactly as your ISP assigned.

**Password:** Enter the password associated with the user name above.

**Encapsulation:** Select Bridge in the Mode field; select either PPPoA or RFC 1483; select Routing in the Mode field; select PPPoA, RFC 1483, ENET ENCAP or PPPoE.

Multiplex: Select the method of multiplexing used by your ISP. Choices are VC or LLC.

**Half Bridge:** The Half Bridge mode can only be used when an IP address has been assigned by the ISP. It is used when the use of NAT is not desirable and when there is only a single computer attached to the router.

**Connection:** The schedule rule(s) have priority over your Connection settings.

**Always on:** Select Always on Connection when you want your connection up all the time.

**Connect on Demand:** Select Connect on Demand when you don't want the connection is up all the time and specify an idle time-out in the Max Idle Timeout field.

**Connect Manually:** Select Connect Manually when you want to connect manually.

**TCP MSS Option:** Enter the TCP Maximum Segment Size (MSS)

- **Get IP Address:** Choose Static or Dynamic for the type of IP address you want to get.
- **Static IP Address:** Enter the IP address of ADSL Router in dotted decimal notation, for example, xx.xx.xx.xx.
- **IP Subnet Mask:** The default is 0.0.0.0. User can change it to other such as 255.255.255.0.Type the subnet mask assigned to you by your ISP (if given).
- **Gateway:** You must specify a gateway IP address (supplied by your ISP) when you use **1483 Bridged IP** in the **Encapsulation** field in the previous screen.
- **NAT:** Select this option to Activate/Deactivated the NAT (Network Address Translation) function for this VC. The NAT function can be activated or deactivated per PVC basis
- **Default Route:** if this function is enabled, the current PVC will be the default gateway to access Internet from this device
- **TCP MTU Option:** Enter the TCP maximum transmission unit (MTU)
- **Dynamic Route:**

**RIP Version:** (Routing Information protocol) Select this option to specify the RIP version, including RIP-1, RIP-2M and RIP-2B. RIP-2M and RIP-2B are both sent in RIP-2 format; the difference is that RIP-2M uses Multicast and RIP-2B uses Broadcast format

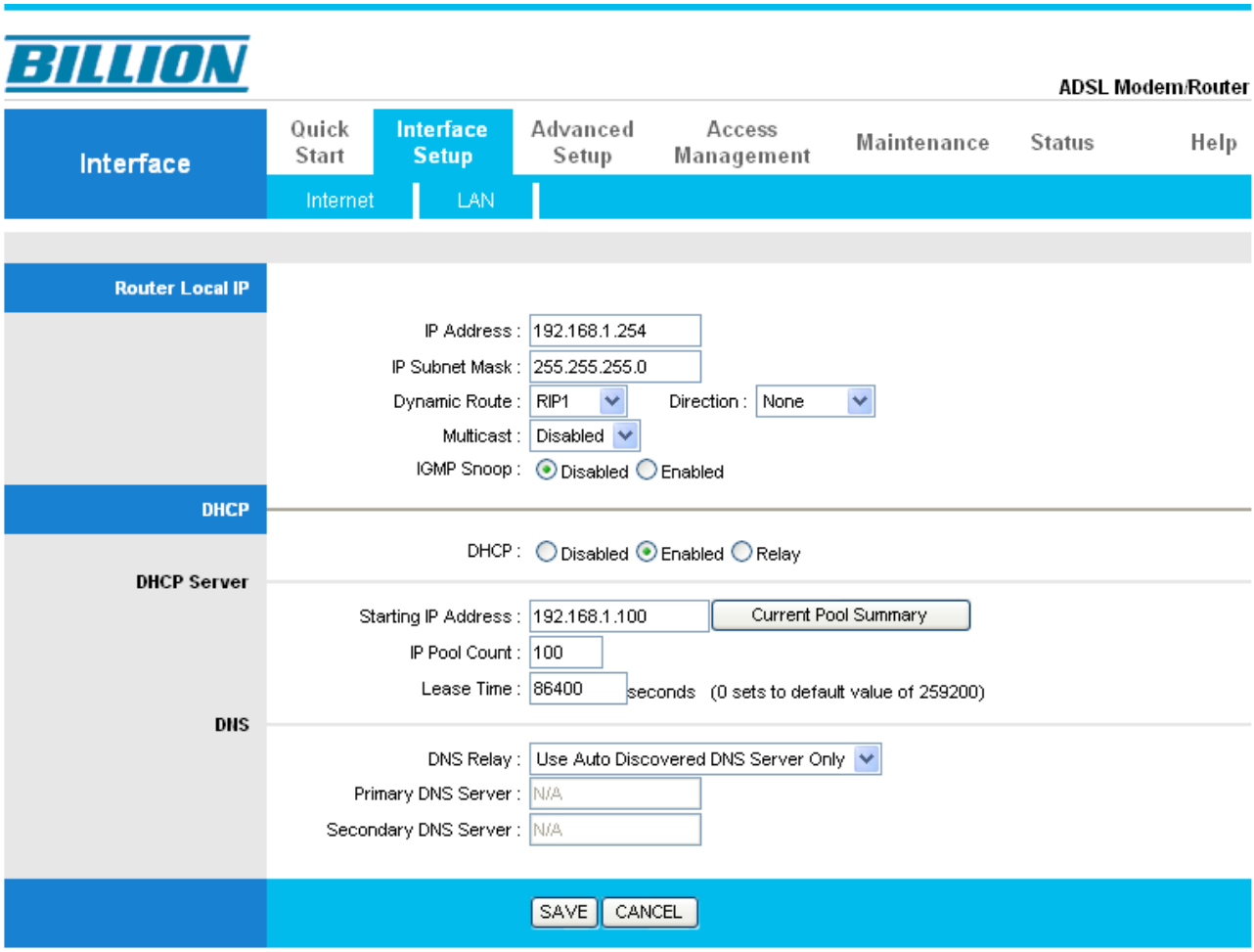
**RIP Direction:** Select this option to specify the RIP direction. Select **None** to disable the RIP function. Select **Both** will activate the ADSL Router to periodically send routing information and accept routing information for incorporation into the routing table. Select **IN** will configure ADSL router to only accept RIP packet but not to send RIP packet. Select **OUT** will configure ADSL router to only send RIP packet but not to accept RIP packet.

- **Multicast:** IGMP (Internet Group Multicast Protocol) is a network-layer protocol used to establish membership in a Multicast group - it is not used to carry user data. Select **None** to disable this function.
- **MAC Spoofing:** Select Enable and enter a MAC address that will temporarily change your router's MAC address to the one you have specified in this field. Leave it as Disabled if you do not wish to change the MAC address of your router.

Press SAVE to confirm your configuration.

## 4.2.2 LAN

A Local Area Network (LAN) is a shared communication system to which many computers are attached and is limited to the immediate area, usually the same building or floor of a building.




**Router Local IP**

**IP Address:** Enter the IP address of ADSL Router in dotted decimal notation, for example, 192.168.1.254 (factory default).

**IP Subnet Mask:** The default is 255.255.255.0. User can change it to other such as 255.255.255.128.

**Dynamic Route:** Select the RIP version from RIP-1, RIP-2B and RIP-2M.

**Direction:** Select the RIP direction from **None**, **Both**, **In** Only and **Out** Only.

**Multicast:** IGMP (Internet Group Multicast Protocol) is a network-layer protocol used to establish membership in a Multicast group - it is not used to carry user data. Select None to disable it.

**IGMP Snoop:** IGMP helps to reduce the network Multicast traffic. Choose to Disable or

Enable IGMP Snoop function.

### DHCP

DHCP (Dynamic Host Configuration Protocol, RFC 2131 and RFC 2132) allows individual clients to obtain TCP/IP configuration at start-up from a server.

**DHCP:**

If set to **Enable**, your device can assign IP addresses, an IP default gateway and DNS servers to Windows 95, Windows NT and other systems that support the DHCP client.

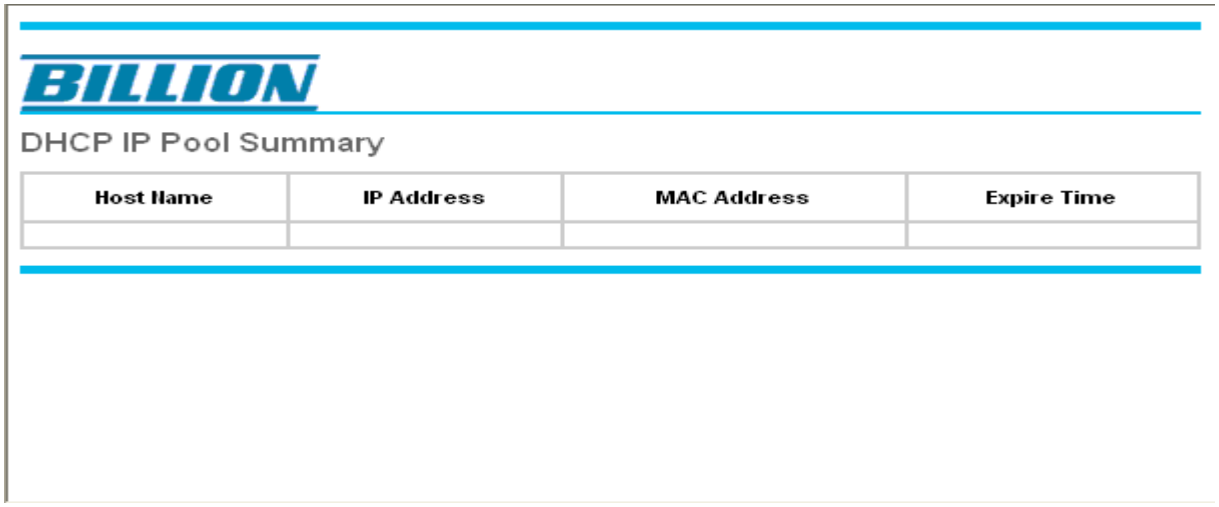
If set to **disabled**, the DHCP server will be disabled.

If set to **Relay**, the device acts as a surrogate DHCP server and relays DHCP requests and responses between the remote server and the clients. Enter the IP address of the actual, remote DHCP server in the Remote DHCP Server field in this case.

When DHCP is used, the following items need to be set.

**Starting IP Address:** This field specifies the first of the contiguous addresses in the IP address pool.

**Current Pool Summary:**




List the message in the IP address pool.

**IP Pool Count:** This field specifies the size or count of the IP address pool.

**Lease Time:** The current lease time of client.

**DNS Relay:** Use the Local computer as a DNS Server, but without any resolution, it pass the work to another DNS Server which the DNS Relay points to. The specified Server do the resolution work and pass the result to the Local server and then the local server pass the received result to the client. Select from the drop-down menu to specify the another server which does the resolution work.

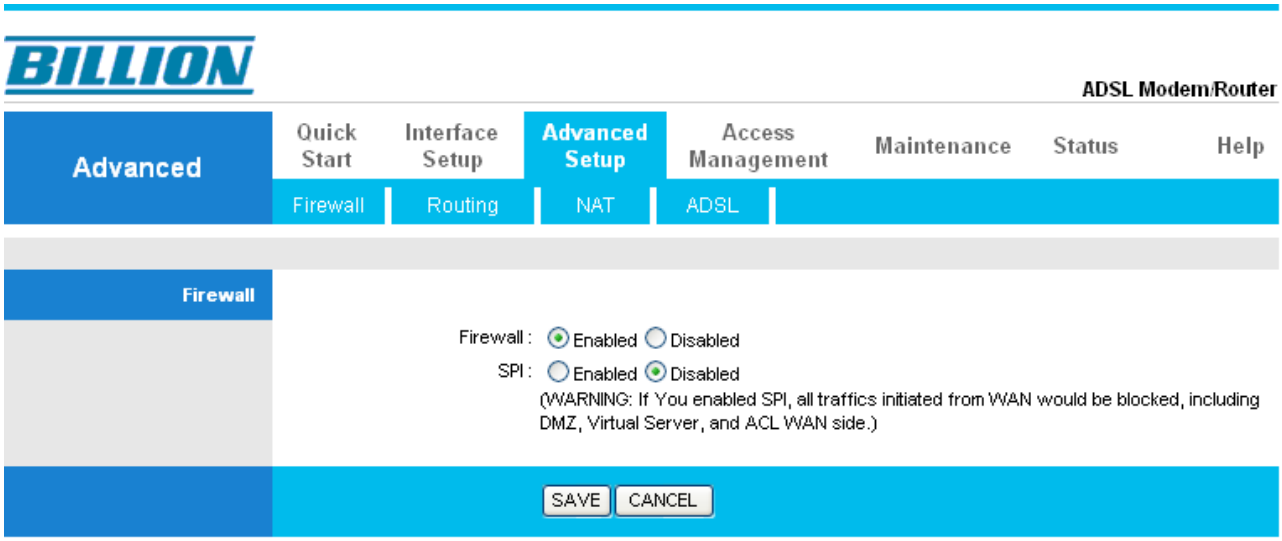
**Primary DNS Server:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

**Secondary DNS Server:** Enter the IP addresses of the DNS servers. The DNS servers are passed to the DHCP clients along with the IP address and the subnet mask.

## 4.3 Advanced Setup

### 4.3.1 Firewall

Your router includes a firewall for controlling Internet access from your LAN and helping to prevent attacks from hackers. In addition to this, when using NAT (Network Address Translation) the router acts as a “natural” Internet firewall, since all PCs on your LAN use private IP addresses that cannot be directly accessed from the Internet.




**Firewall:** to automatically detect and block Denial of Service (DoS) attacks, such as Ping of Death, SYN Flood, Port Scan and Land Attack.

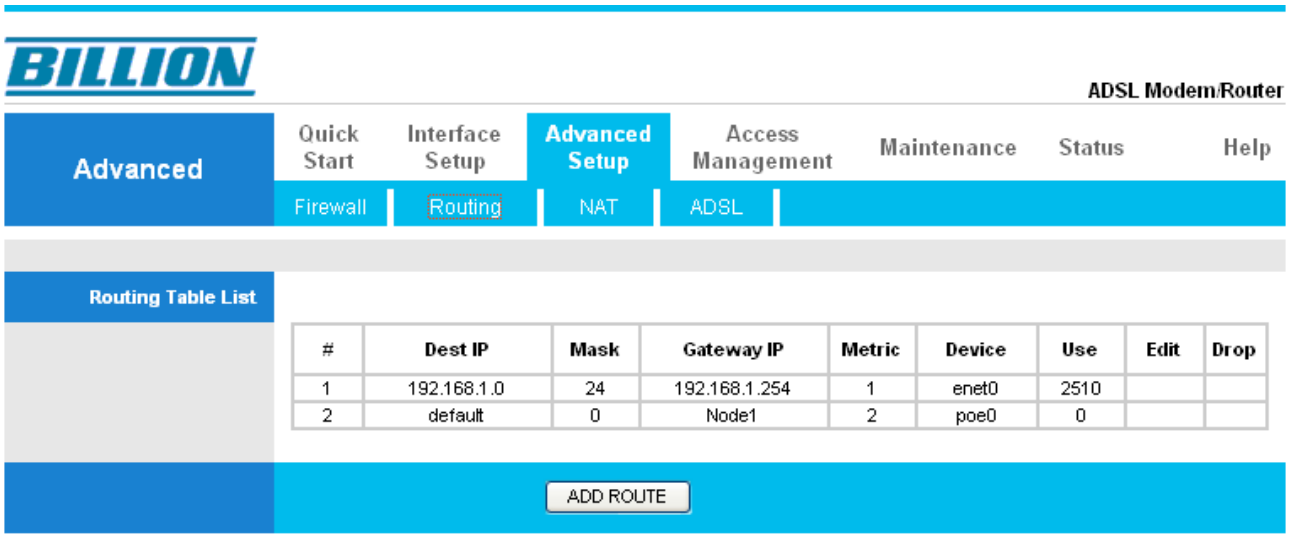
- **Enabled:** As set in default setting**,** it activates your firewall function.
- **Disabled:** It disables the firewall function.

**SPI:** If you enabled SPI, all traffics initiated from WAN would be blocked, including DMZ, Virtual Server, and ACL WAN side.

- **Enabled:** As set in default setting**,** it activates your SPI function.
- **Disabled:** It disables the SPI function.

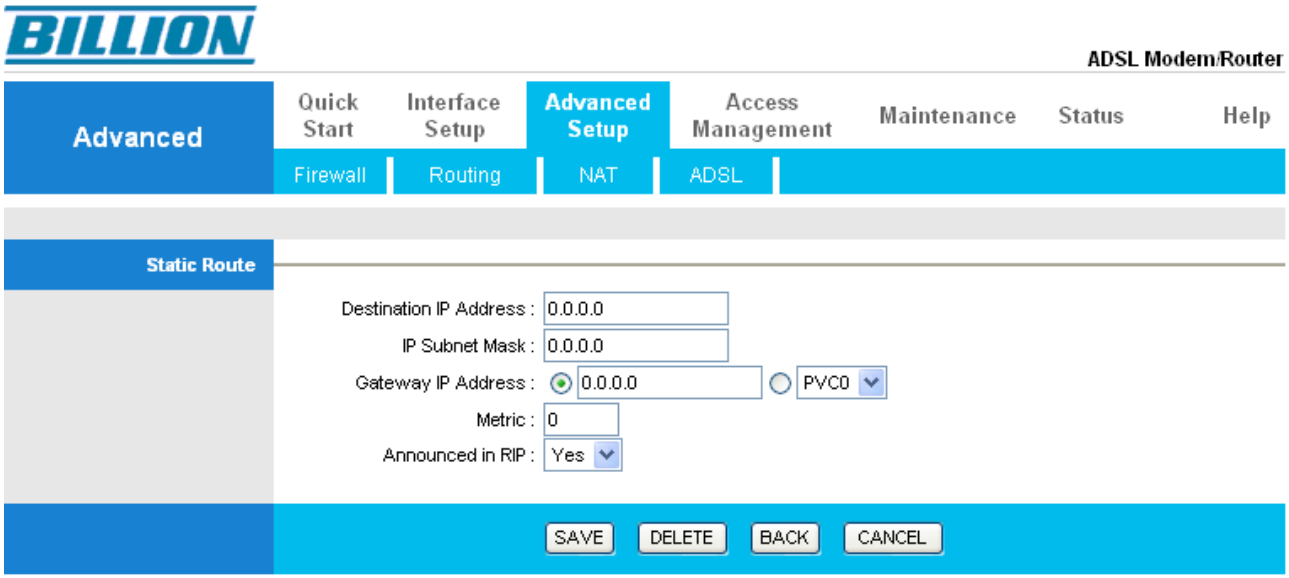
### 4.3.2 Routing

If you have another router with a LAN-to-LAN connection, you may create a static routing on the router that is the gateway to Internet.




- **#:** Item number.
- **Dest IP:** IP address of the destination network.
- **Mask:** The destination mask address.
- **Gateway IP:** IP address of the gateway or existing interface that this route uses.
- **Metric:** It represents the cost of transmission for routing purposes. The number need not be precise, but it must be between 1 and 15.
- **Device:** Media/channel selected to append the route.
- **Use:** the statistics of the transmitted and received packets.
- **Edit:** Edit the route; this icon is not shown for system default route.
- **Drop:** Drop the route; this icon is not shown for system default route.

## ADD Route




**Destination IP Address:** This is the destination subnet IP address.

**IP Subnet Mask:** A subnet mask allows IP networks to be subdivided for security and performance purposes.

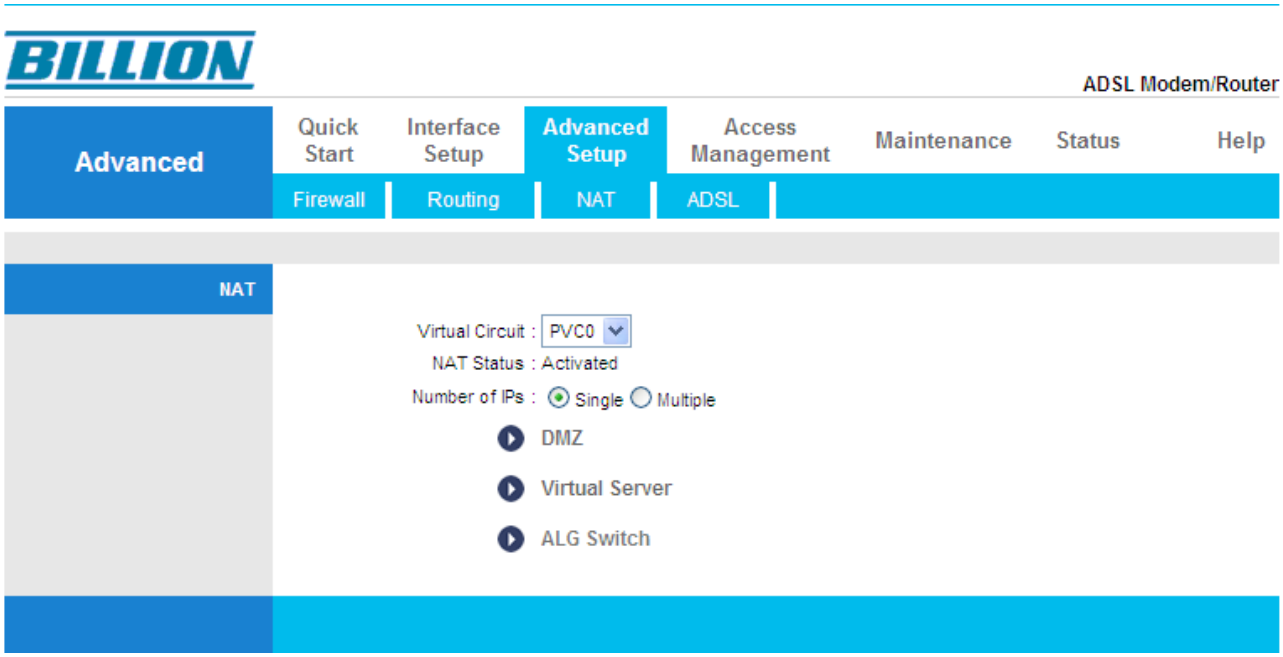
**Gateway IP Address:** This is the gateway IP address to which packets are to be forwarded.

**Metric:** It represents the cost of transmission for routing purposes. The number need not be precise, but it must be between 1 and 15.

**Announced in RIP:** This parameter determines if the prestige will include the router in the remote node in its RIP broadcast. Set “No”, it is kept private and is not included in RIP broadcasts. Set “Yes”, the remote node will be propagated to other hosts through RIP broadcasts.

### 4.3.3 NAT

The NAT (Network Address Translation - NAT, RFC 1631) is the translation of the IP address of a host in a packet. The default setting is **Dynamic NAPT**. It provides dynamic Network Address Translation capability between LAN and multiple WAN connections, and the LAN traffic is routed to the appropriate WAN connections based on the destination IP addresses and Route Table. This eliminates the need for static NAT session configuration between multiple LAN clients and multiple WAN connections.

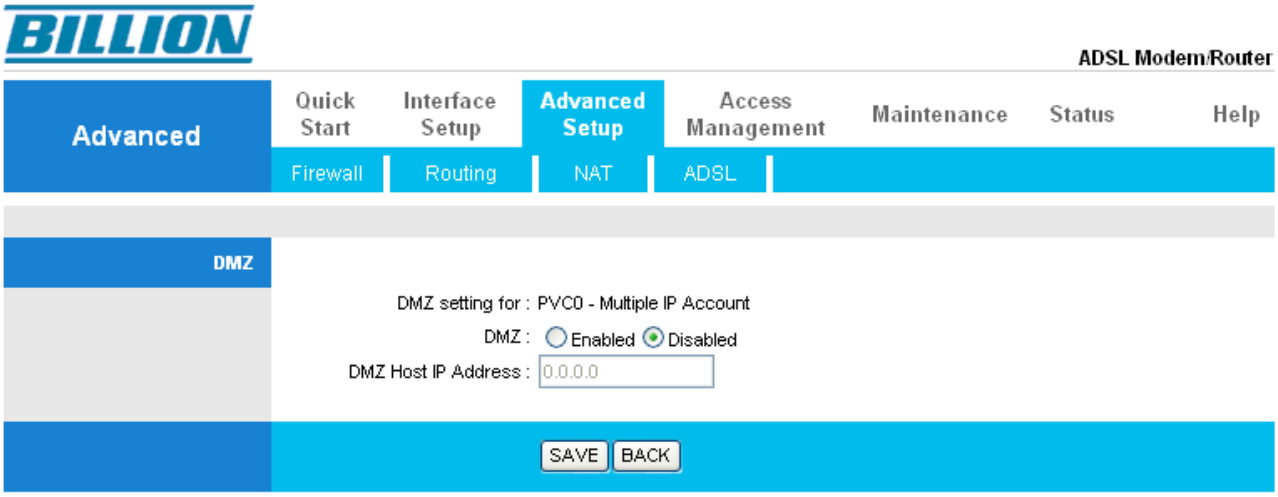



**Virtual Circuit:** VPI (Virtual Path Identifier) and VCI (Virtual Channel Identifier) define a virtual circuit. There are eight groups of PVC that can be defined and used.

**NAT Status:** Show the NAT Status, Activated or Deactivated.

**Number of IPs:** User can select Single or Multiple. Select Multiple to trigger IP Address Mapping.

## DMZ




The DMZ Host is a local computer exposed to the Internet. When setting a particular internal IP address as the DMZ Host, all incoming packets which do not use a port number that is being used by any other Virtual Server entries will first be checked by the Firewall and NAT algorithms before they are passed to the DMZ host.

**DMZ:** indicate the related LAN PC and PVC ports which allow outside network to connect in and communicate.

- **Disabled:** As set in default setting, it disables the DMZ function.
- **Enabled:** It activates your DMZ function.

**DMZ Host IP Address:** Give a static IP address to the DMZ Host when **Enabled** radio button is checked. Be aware that this IP will be exposed to the WAN/Internet.
Select the **SAVE** button to apply your changes.

## Virtual Server

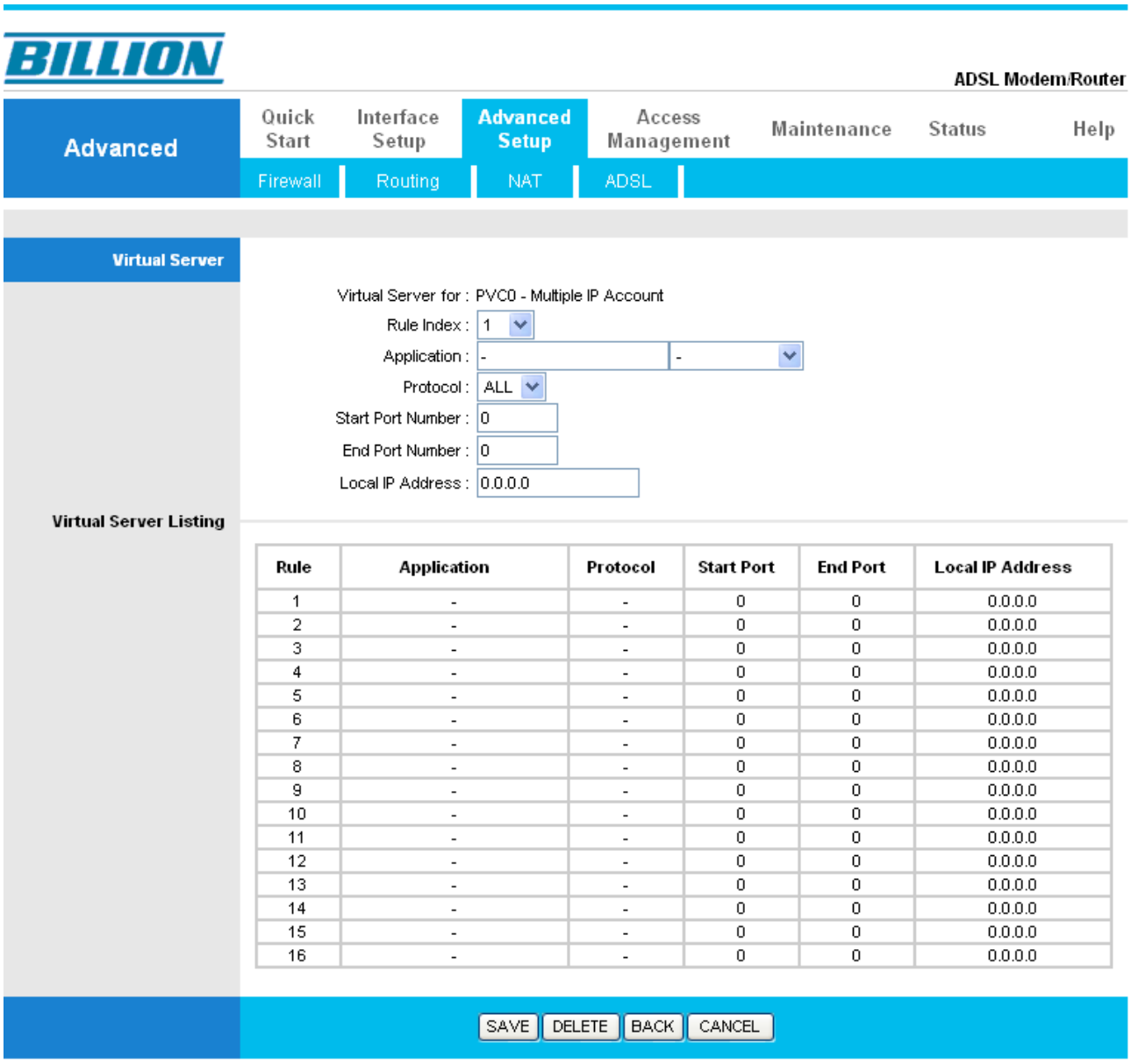
TCP/IP and UDP is 16-bit number network ports that are used to identify which application program (usually a server) each incoming connections should be delivered to. Some ports have numbers that are pre-assigned to them by the IANA (the Internet Assigned Numbers Authority), and these are referred to as “well-known ports”. Servers follow the well-known port assignments that allow clients to locate them.

If you wish to run a server on your network that can be accessed from WAN (i.e. from other machines on the Internet that are outside your local network), or any application that can accept incoming connections (e.g. Peer-to-peer/P2P software such as instant messaging applications and P2P file-sharing applications) and are using NAT (Network Address Translation), then you will usually need to configure your router to forward these incoming

connection attempts using specific ports to the PC on your network running the application. You will also need to use port forwarding if you want to host an online game server.

The reason for this is that when using NAT, your publicly accessible IP address will be used by and point to your router, which then needs to deliver all traffic to the private IP addresses used by your PCs. Please see the **WAN** configuration section of this manual for more information on NAT.

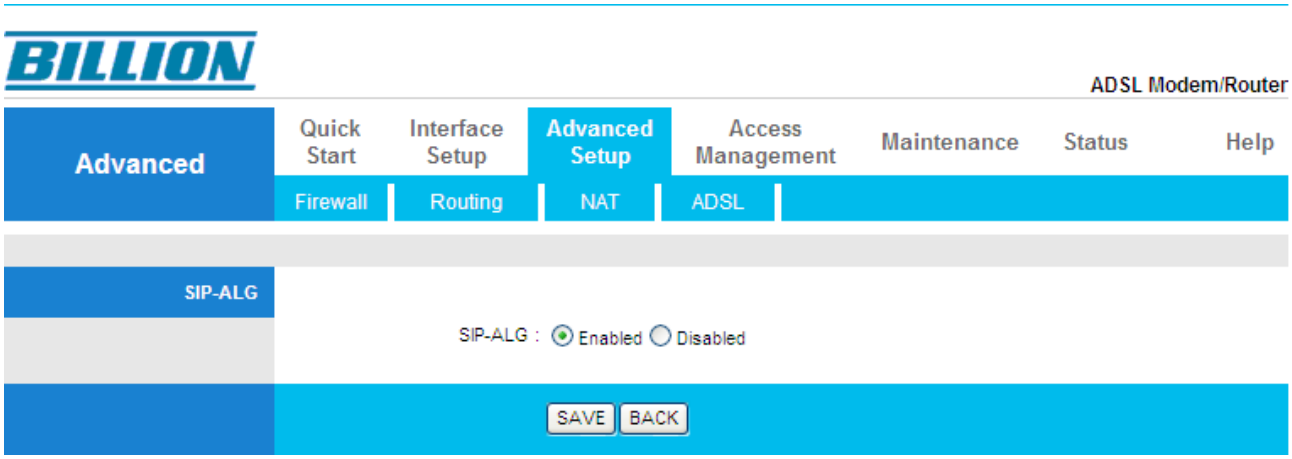
The device can be configured as a virtual server so that remote users accessing services such as Web or FTP services via the public (WAN) IP address can be automatically redirected to local servers in the LAN network. Depending on the requested service (TCP/UDP port number), the device redirects the external service request to the appropriate server within the LAN network.



- **Rule Index:** Choose the rule number.
- **Application:** Choose the predefined rule from Application drop-down menu or enter a custom name.
- **Protocol:** Choose the Protocol Type, ALL, TCP or UDP.
- **Start Port Number:** Enter a port number as the beginning number of the range which you want to give to devices to access in this field.
- **End Port Number:** Enter a port number as the end number of the range which you want to give to devices to access in this field.
- **Local IP Address:** Enter your server IP address in this field.

## ALG Switch

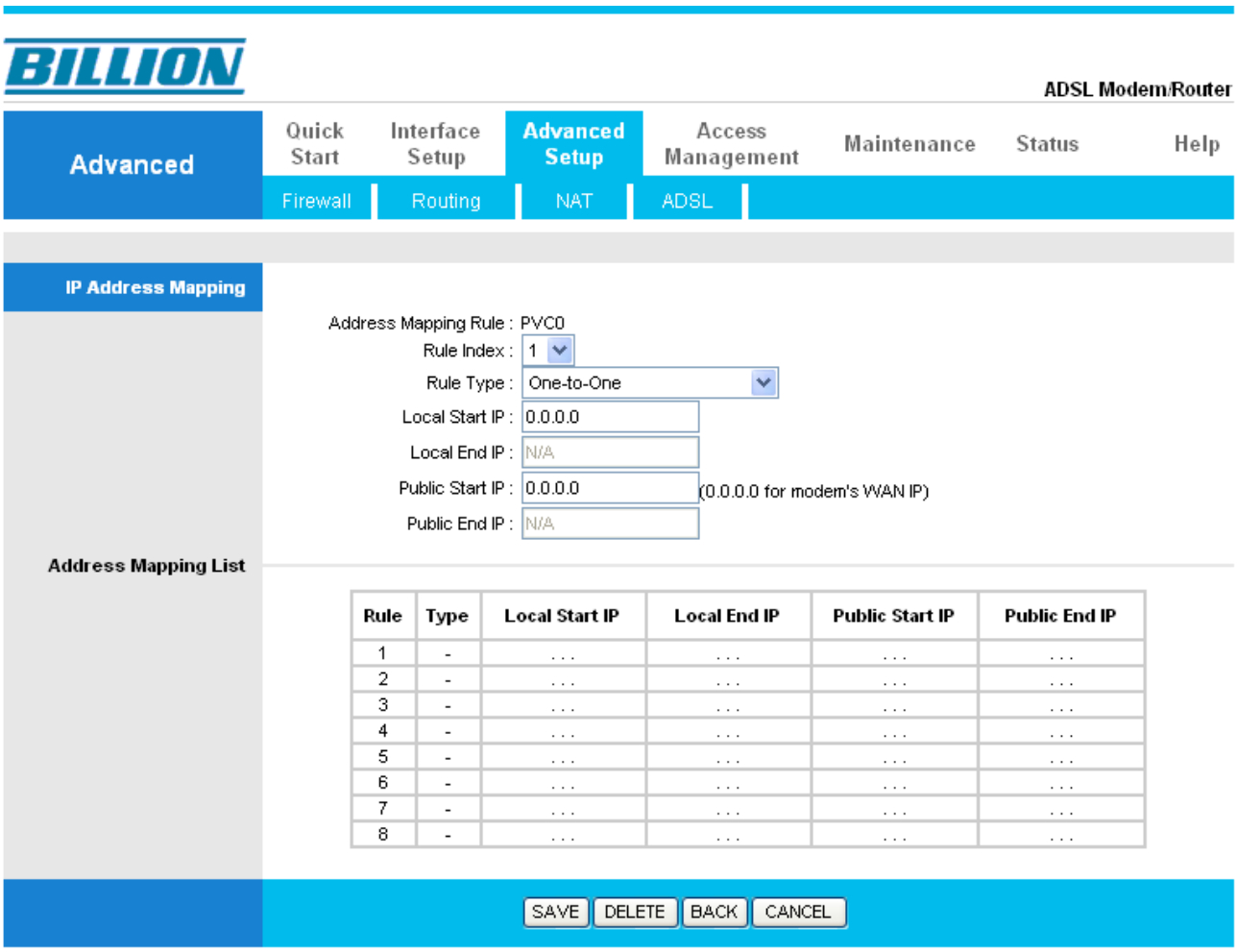
In the context of computer networking, an application-level gateway (also known as ALG or application layer gateway) consists of a security component that augments a firewall or NAT employed in a computer network. It allows customized NAT traversal filters to be plugged into the gateway to support address and port translation for certain application layer "control/data" protocols such as FTP, BitTorrent, SIP, RTSP, file transfer in IM applications etc. In order for these protocols to work through NAT or a firewall, either the application has to know about an address/port number combination that allows incoming packets, or the NAT has to monitor the control traffic and open up port mappings (firewall pinhole) dynamically as required. Legitimate application data can thus be passed through the security checks of the firewall or NAT that would have otherwise restricted the traffic for not meeting its limited filter criteria.




**SIP-ALG:** select Enabled to activate **SIP ALG** feature or Disabled to disable this feature.
The Session Initiation Protocol (SIP) is an IETF-defined signaling protocol, widely used for controlling multimedia communication sessions such voice and video calls over Internet protocol (IP). The protocol can be used for creating, modifying and terminating two-party (unicast) or multiparty (multicast) sessions consisting of one or several media streams. It is a text-based Application Layer protocol.
But as many use NAT to communicate with the public networks, and the IP address and port combination in SIP packets are needed for addressing, we must come up with an effective way to deal with SIP NAT traversal. SIP ALG is an easy solution with which you are only required to enable SIP ALG on NAT application in this router to easily experience the smooth SIP connection between private networks and public networks or even in two private networks with your VoIP devices.

Press **SAVE** button to apply your settings.

## IP Address Mapping




**Rule Index:** Choose the rule number.

**Rule Type:**

**One-to-one:** This is the mode that maps one local IP address to one global IP address. Note that port numbers do not change for the One-to-one NAT mapping type.

**Many-to-One:** This is the mode that maps multiple local IP addresses to one global IP address. This is equivalent to Many to One (i.e., PAT, port address translation).

**Many-to-Many Overload:** This is mode that maps multiple local IP addresses to shared global IP addresses.

**Many-to-Many No Overload:** This is the mode that maps each local IP address to unique global IP addresses.

**Server:** This type allows you to specify inside servers of the different services behind the NAT to be accessible to the outside world.

**Local Start IP:** This is the starting Inside Local IP Address (ILA). Local IP addresses are N/A for Server port mapping.

**Local End IP:** This is the end Inside Local IP Address (ILA). If your rule is for all local IP

addresses, then enter 0.0.0.0 as the Local Start IP address and 255.255.255.255 as the Local End IP address. This field is N/A for One-to-one and Server mapping types.

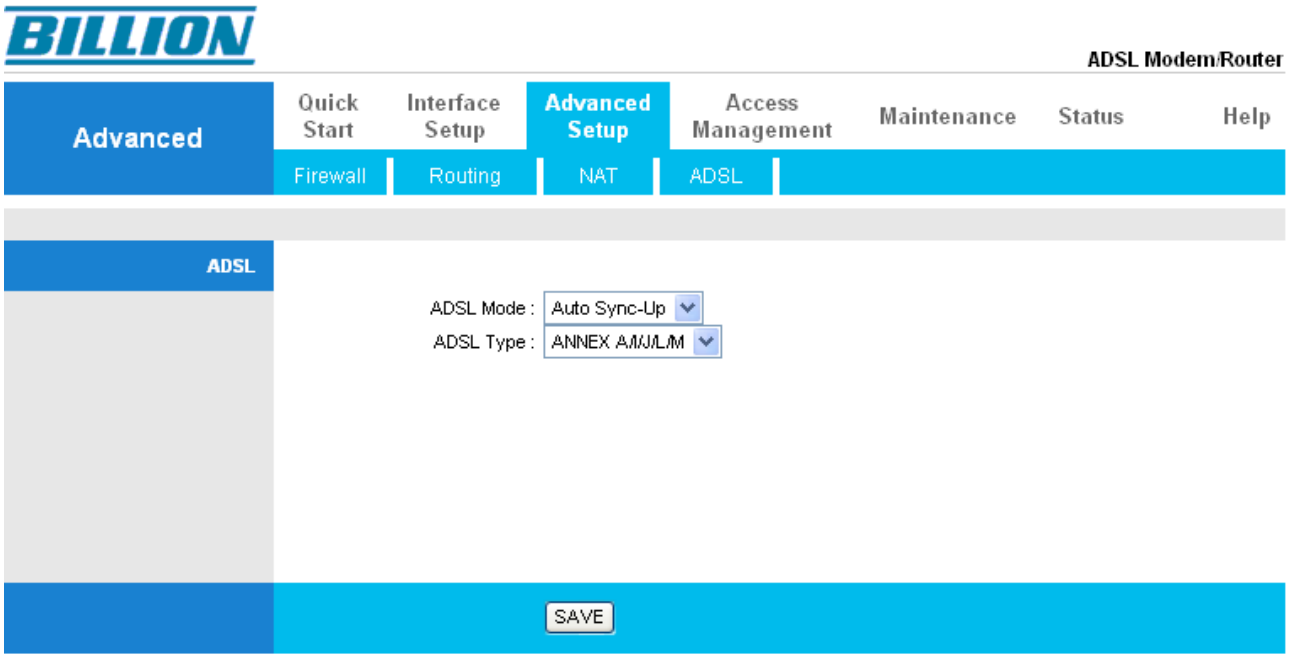
- **Public Start IP:** This is the starting Inside Public IP Address. Enter 0.0.0.0 here if you have a dynamic IP address from your ISP.
- **Public End IP:** This is the ending Inside Public IP Address. This field is N/A for One-to-one, Many-to-One and Server mapping types.

Using Port Forwarding does have implications, as outside users will be able to connect to the PCs on your network. For this reason, you are adviced to use specific Virtual Server entries just for the port your application requires instead of using DMZ. Doing so will result in all connections from WAN to attempt to access the public IP your DMZ specifies.

**Attention**

If you have enabled the NAT option in the WAN-ISP section, the virtual server function will hence become invalid. If the DHCP server option is enabled, you have to be very careful in assigning IP addresses of the virtual server in order to avoid confiict. The easiest way to configure the virtual server is manually assign a static IP address that does not fall into the range of IP addresses which is to be assigned by the DHCP server to each virtual server PC. You can configure the virtual server IP address but it must be in the same subnet as the router.

## 4.3.4 ADSL



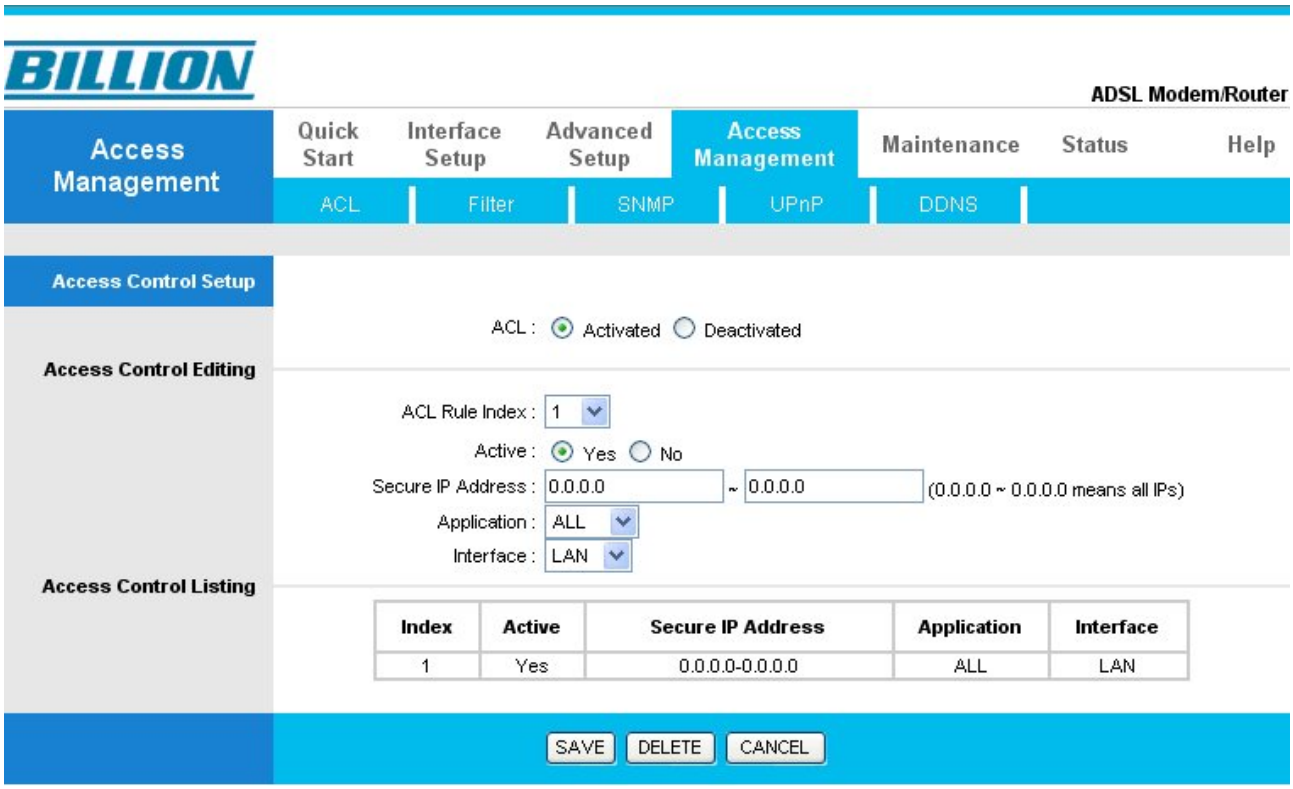

**ADSL Mode:** The default setting is **Auto Sync-UP**. This mode will automatically detect your ADSL, ADSL2+, ADSL2, G.dmt, G.lite, and T1.413. But in some areas, multimode cannot detect the ADSL line code well. If it is the case, please adjust the ADSL line code to G.dmt or T1.413 first. If it still fails, please try the other values such as ALCTL, ADI, etc.

**ADSL Type:** There are five modes “Open Annex Type and Follow DSLAM’s Setting”, ”Annex A”, ”Annex I”, “Annex A/L”, ”Annex M” and “Annex A/I/J/L/M” that user can select for this connection.

## 4.4 Access Management

### 4.4.1 ACL

Access Control Listing allows you to determine which services/protocols can access BiPAC 5200S *RC* Series interface and from which computer.




- **ACL:** Select whether to activate to configure this ACL function. If you select Deactivated, then the following is not available.
- **ACL Rule Index:** This is item number.
- **Active:** Select Yes to active the ACL rule or No to disable ACL rule.
- **Secure IP Address:** The default 0.0.0.0 allows any client to use this service to remotely manage the BiPAC 5200S *RC* Series router. Type an IP address to restrict access to a client with a matching IP address.
- **Application:** Choose a service that you may use to remotely manage the BiPAC 5200S *RC* Series router.
- **Interface:** Select the access interface. Choices are **LAN**, **WAN** and **Both**.

## 4.4.2 Filter

You can filter the packages by IP port, MAC and Application.

BILLION
ADSL Modem/Router
Access Management
Quick Start
Interface Setup
Advanced Setup
Access Management
Maintenance
Status
Help
ACL
Filter
SNMP
UPnP
DDNS
Filter
Filter Type
Filter Type Selection : IP / MAC Filter
IP / MAC Filter Set Editing
IP / MAC Filter Set Index : 1
Interface : PVC0
Direction : Both
IP / MAC Filter Rule Editing
IP / MAC Filter Rule Index : 1
Rule Type : IP
Active : Yes No
Source IP Address : (0.0.0.0 means Don't care)
Subnet Mask :
Port Number : 0 (0 means Don't care)
Destination IP Address : (0.0.0.0 means Don't care)
Subnet Mask :
Port Number : 0 (0 means Don't care)
Protocol : TCP
Rule Unmatched : Forward
IP / MAC Filter Listing
IP / MAC Filter Set Index 1 Interface - Direction -
# Active Src Address/Mask Dest IP/Mask Src Port Dest Port Protocol Unmatched
1 - - - - - - -
2 - - - - - - -
3 - - - - - - -
4 - - - - - - -
5 - - - - - - -
6 - - - - - - -
SAVE
DELETE
CANCEL

### Filter Type

**Filter Type Selection:** There are three types of filter: "**IP/MAC Filter**", "**Application Filter**", and "**URL Filter**" that user can select for this connection.

### IP/MAC Filter Set Editing

**IP/MAC filter Set Index:** This is item number

- **Interface:** Select which channel (PVC) to configure.
- **Direction:** Select the access to the Internet (**"Outgoing"**) or from the Internet (**"Incoming"**) or **Both.**

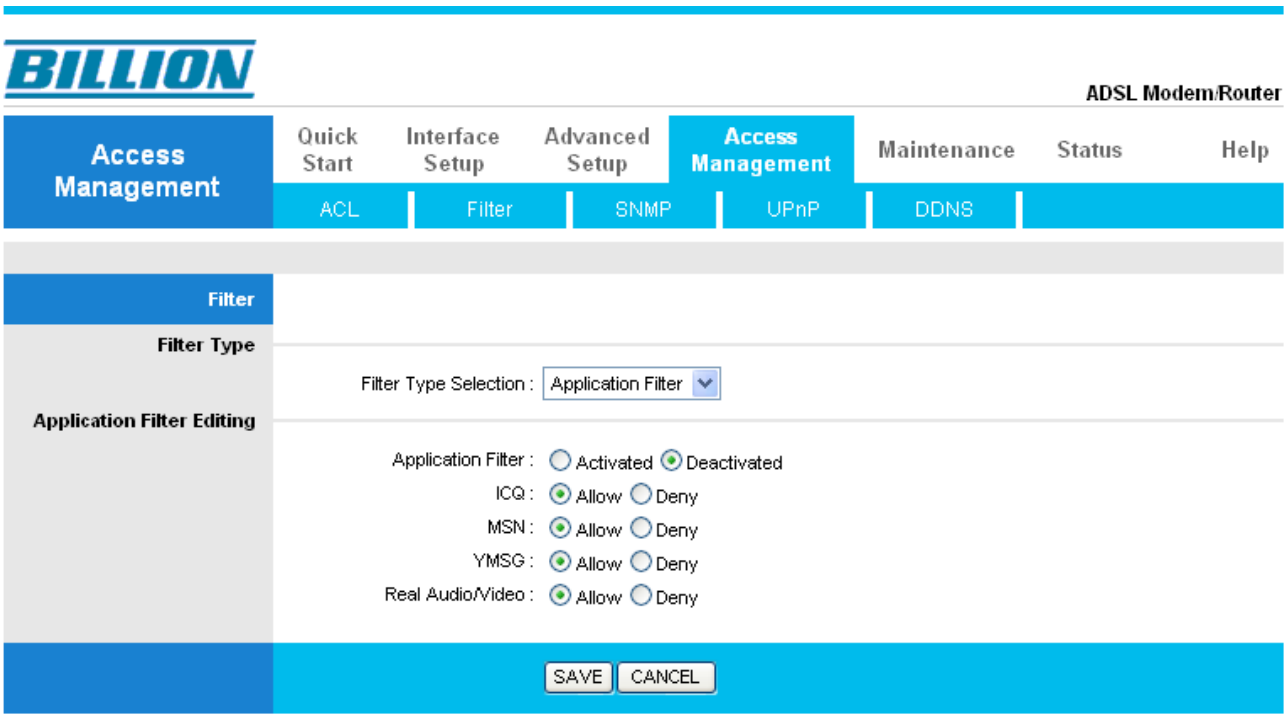
### IP/MAC Filter Rule Editing

- **IP/MAC Filter Rule Index:** This is item number
- **Rule Type:** Choose "IP" or "MAC" rules
- **Active:** Select **Yes** from the drop down list box to enable IP filter rule.
- **Source IP Address:** The source IP address or range of packets to be monitored.
- **Subnet Mask:** It is the source IP addresses based on above source subnet IP
- **Source Port Number:** This Port or Port Ranges defines the port allowed to be used by the Remote/WAN to connect to the application. Default is set from range **0 ~ 65535.** It is recommended that only advanced user configure this option.
- **Destination IP Address:** This is the destination subnet IP address.
- **Subnet Mask:** It is the destination IP addresses based on above destination subnet IP
- **Destination Port Number:** This is the Port or Port Ranges that defines the application.
- **Protocol:** It is the packet protocol type used by the application. Select either **TCP** or **UDP** or **ICMP**
- **Rule Unmatched:** Select action for the traffic that does not match the current rule; Forward to leave it pass through, and NEXT to check it by the next rule.

### IP/MAC Filter Listing

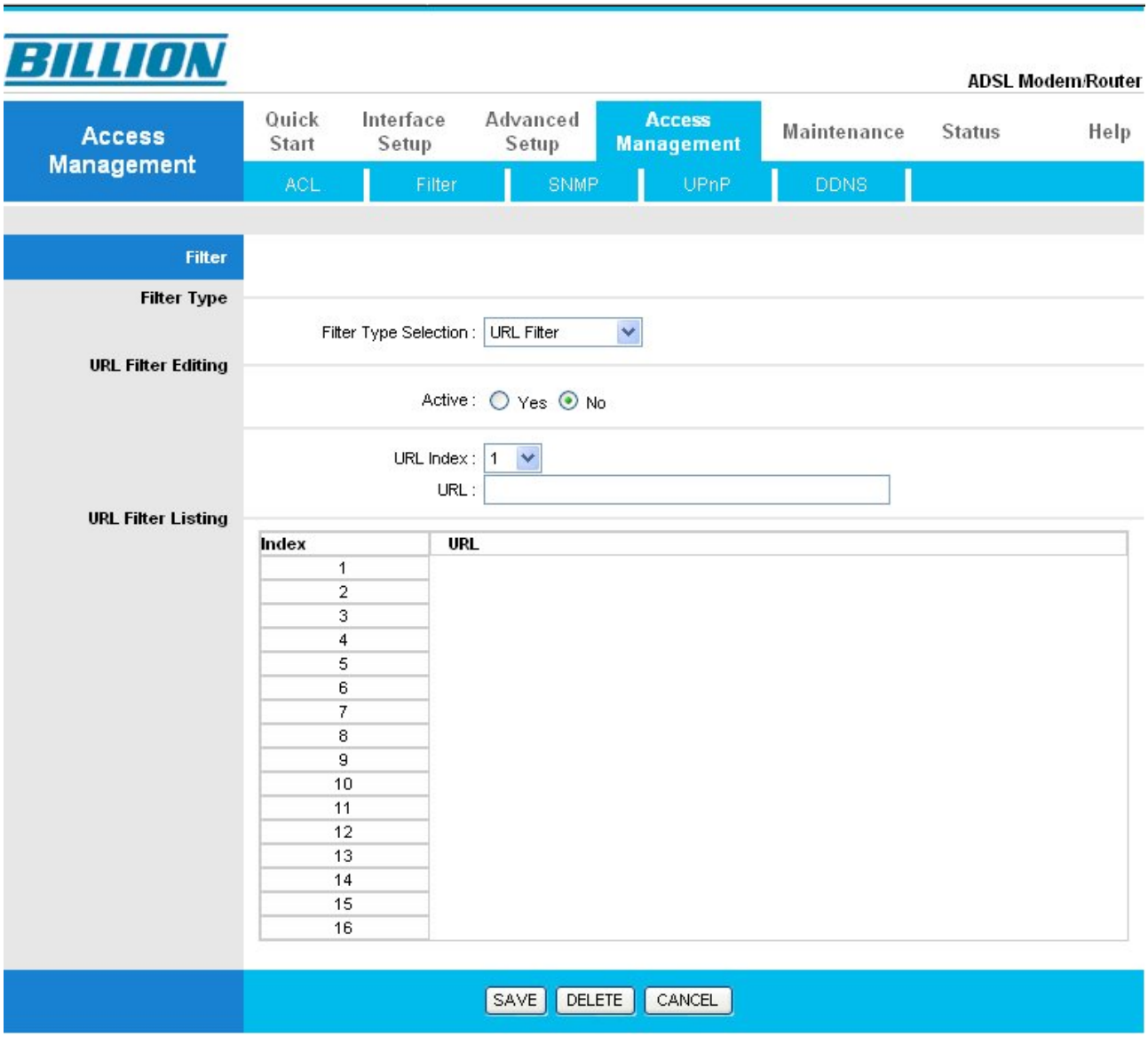
- **#:** Item number**.**
- **Active:** Whether the connection is currently active.
- **Src IP/Mask:** The source IP address or range of packets to be monitored.
- **Dest IP/Mask:** This is the destination subnet IP address.
- **Src port:** This Port or Port Ranges defines the port allow to be used by the Remote/WAN to connect to the application. Default is set from range **0 ~ 65535.** It is recommended that an advanced user configure this option.
- **Dest Port:** This is the Port or Port Ranges that defines the application.
- **Protocol:** It is the packet protocol type used by the applications Select either **TCP** or **UDP** or **ICMP**
- **Unmatched:** It shows this profile's setting: Forward or NEXT

## Application Filter




- **Application Filter:** Select this option to Activated/Deactivated the Application filter.
- **ICQ:** Select this option to Allow/Deny ICQ.
- **MSN:** Select this option to Allow/Deny MSN.
- **YMSG:** Select this option to Allow/Deny Yahoo messenger.
- **Real Audio/Video:** Select this option to Allow/Deny Real Audio/Video.

## URL Filter




- **Active:** Select **Active** to enable URL Filter.
- **URL Index:** This is item number.
- **URL:** Allow you to prevent users on your network from accessing particular websites by their URL.

### 4.4.3 SNMP

Simple Network Management Protocol (SNMP) is a protocol used for exchanging management information between network devices. SNMP is a member of the TCP/IP protocol suite. BiPAC 5200S *RC* Series supports SNMP agent functionality that allows a manager station to manage and monitor the router through the network.

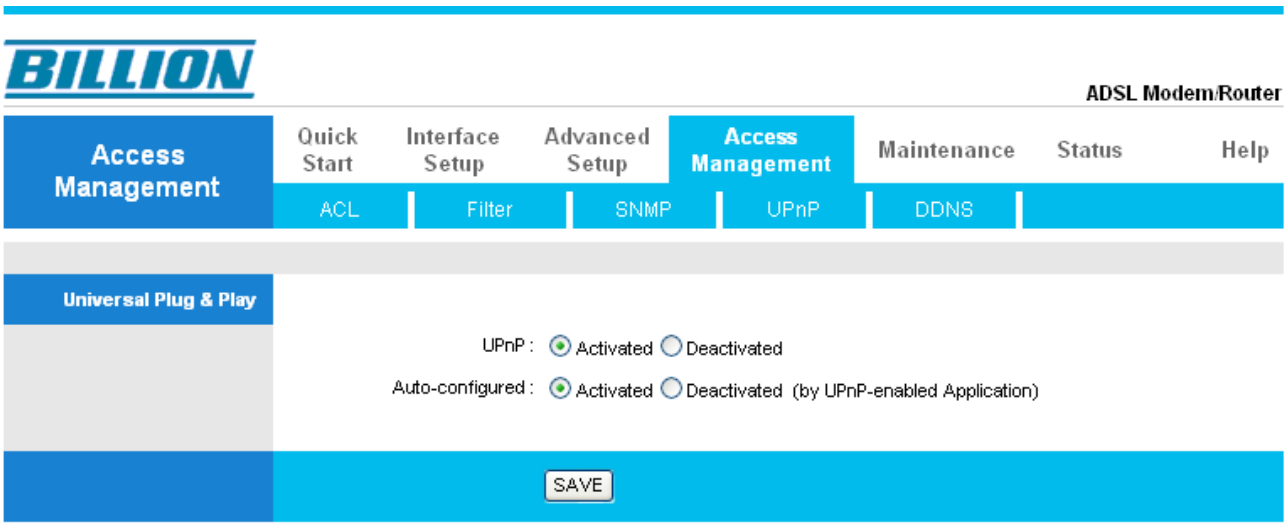
**Get Community:** Type the Get Community, which is the password for the incoming Get-and GetNext requests from the management station.

**Set Community:** Type the Set Community, which is the password for incoming Set requests from the management station.

### 4.4.4 UPnP

UPnP offers peer-to-peer network connectivity for PCs and other network devices, along with control and data transfer between devices. UPnP offers many advantages for users running NAT routers through UPnP NAT Traversal, and on supported systems makes tasks such as port forwarding much easier by letting the application control the required settings, removing the need for user to control advanced configuration of their device.

Both the user's Operating System and the relevant application must support UPnP in addition to the router. Windows XP and Windows Me natively support UPnP (when the component is installed), and Windows 98 users may install the Internet Connection Sharing client from Windows XP in order to support UPnP. Windows 2000 does not support UPnP.

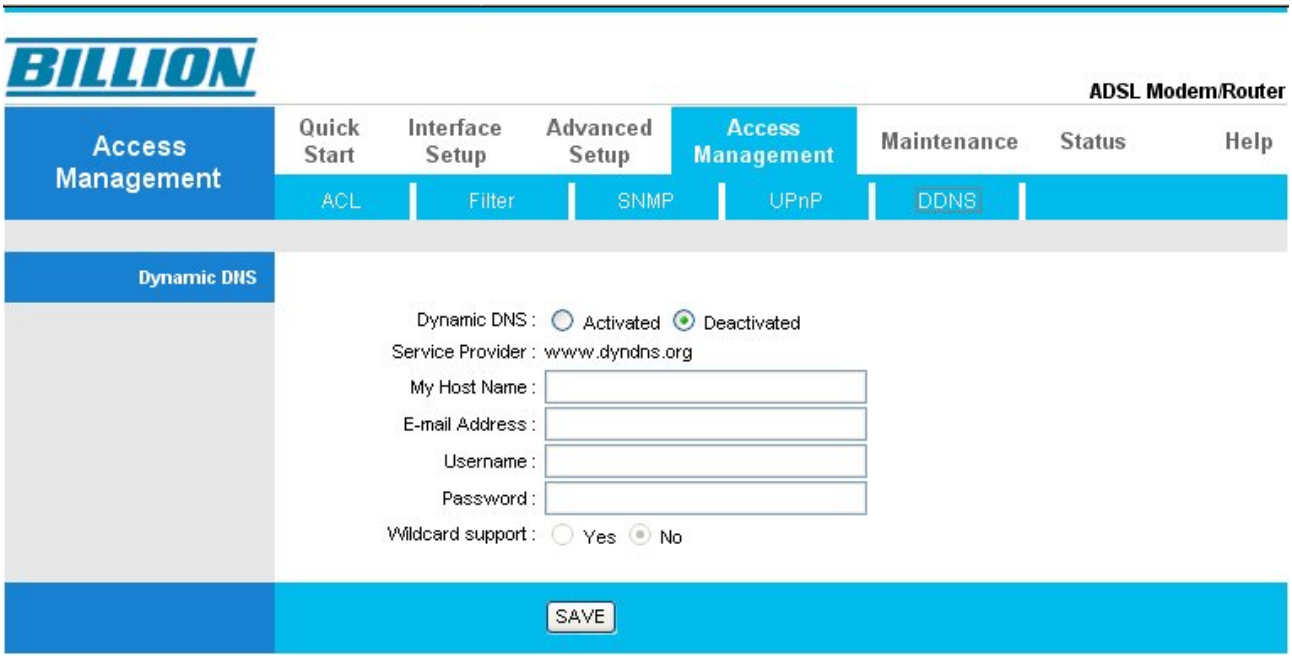



**UPnP:** Select this checkbox to activate UPnP. Be aware that anyone could use a UPnP application to open the web configuration login screen without entering the BiPAC 5200S *RC* Series IP address

**Auto-configured:** Select this check box to allow UPnP-enabled applications to automatically configure the BiPAC 5200S *RC* Series so that they can communicate through the BiPAC 5200S *RC* series router, for example by using NAT traversal, UPnP applications automatically reserve a NAT forwarding port in order to communicate with another UPnP enabled device; this eliminates the need to manually configure the forwarding port for the UPnP enabled application.

### 4.4.5 DDNS

The Dynamic DNS function allows you to alias a dynamic IP address to a static hostname, allowing users whose ISP does not assign them a static IP address to use a domain name. This is especially useful for hosting servers via your ADSL connection, so that anyone wishing to connect to you may use your domain name, rather than having to use your dynamic IP address, which changes from time to time. This dynamic IP address is the WAN IP address of the router, which is assigned to you by your ISP.

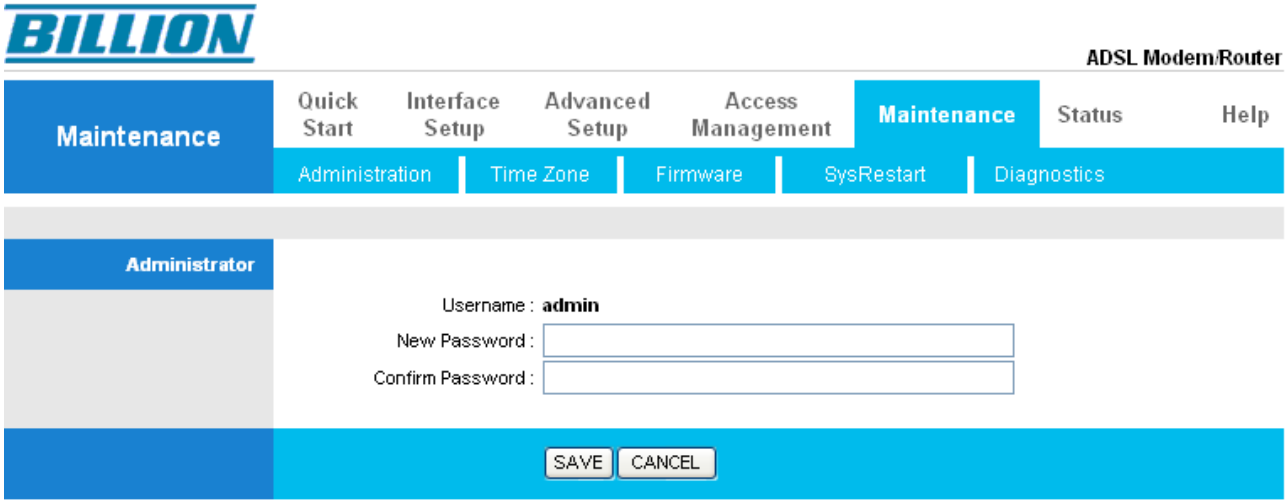



- **Dynamic DNS:** Select this check box to use Dynamic DNS.
- **Service Provider:** www.dyndns.org
- **My Host Name**: Type the domain name assigned to your BiPAC 5200S *RC* series router by your Dynamic DNS provider.
- **E-mail Address:** Type your e-mail address.
- **Username:** Type your user name.
- **Password:** Type the password assigned to you.
- **Wildcard support:** Select this check box to enable DYNDNS Wildcard. The Wildcard Alias enables you to point a URL ( *.yourdomain.com - set in the Domain Name field) to your dynamic IP address.

## 4.5 Maintenance

### 4.5.1 Administration

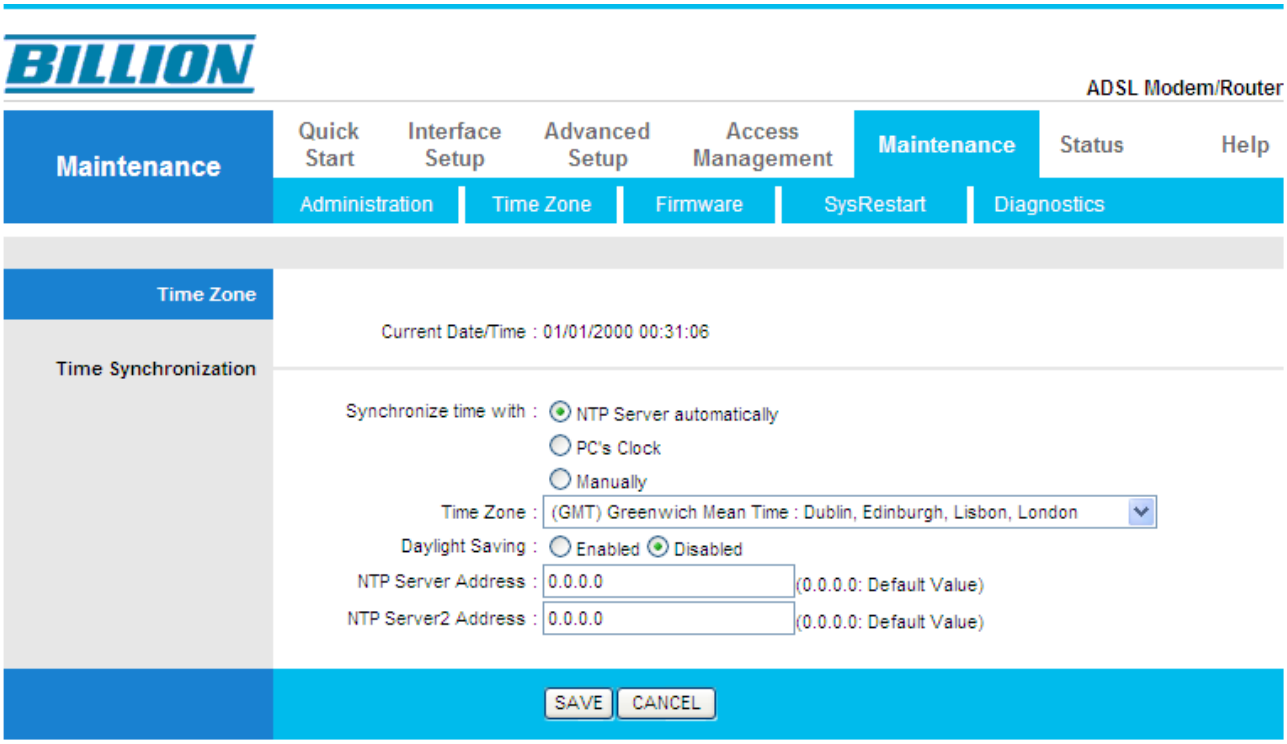
In factory setting, the default password is **admin**, and that for user is also **admin**. You can change the default password to ensure that someone cannot adjust your settings without your permission. Every time you change your password, please record the password and keep it at a safe place.




- **New Password:** Type the new password in this field
- **Confirm Password:** Type the new password again in this field.

### 4.5.2 Time Zone

The router does not have a real time clock on board; instead, it uses the Simple Network Time Protocol (SNTP) to get the current time from an SNTP server outside your network. Choose your local time zone. After a successful connection to the Internet, the router will retrieve the correct local time from the SNTP server you have specified. If you prefer to specify an SNTP server other than those in the drop-down list, simply enter its IP address as shown above. Your ISP may provide an SNTP server for you to use.

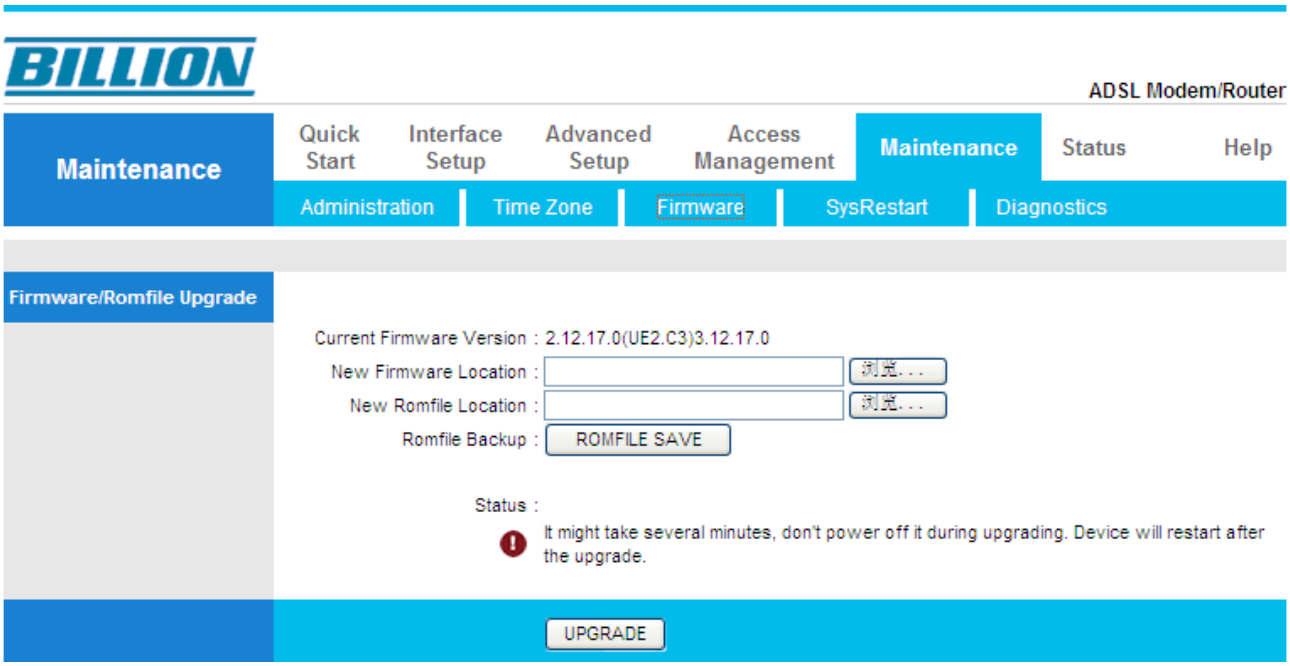



- **Synchronize time with:** Select the time service protocol that your time server sends you when you turn on the Router.
- **Time Zone:** Choose the time zone of your location. This will set the time difference between your time zone and Greenwich Mean Time (GMT).
- **Daylight Saving:** Select this option if you use daylight savings time.
- **NTP Server Address/ NTP Server2 Address:** Enter the IP address of your time server. Check with your ISP/network administrator if you are unsure of this information.

### 4.5.3 Firmware

Your router's "firmware" is the software that allows it to operate and provides all its functionality. Think of your router as a dedicated computer, and the firmware as the software it runs. Over time this software may be improved and modified, and your router allows you to upgrade the software it runs to take advantage of these changes.

To upgrade the firmware of BiPAC 5200S *RC* Series, you should download or copy the firmware to your local environment first. Press the **"Browse…"** button to specify the path of the firmware file. Then, click **"Upgrade"** to start upgrading. When the procedure is completed, BiPAC 5200S *RC* Series router will reset automatically to apply the new firmware.




- **New Firmware Location:** Type in the location of the file you want to upload in this field or click **Browse** to find it.
- **New Romfile Location:** Romfile means the configuration file. Type in the location of the file you want to upload in this field or click **Browse** to find it.
- **Browse:** Click **Browse...** to find the .ras file you want to upload. Remember that you must decompress compressed (.zip) files before you can upload them.
- **Romfile Backup:** Click **ROMFILE SAVE** button to save current configuration file to your PC.
- **UPGRADE:** Click **UPGRADE** to begin the upload process. This process may take up to two minutes.

After two minutes, log in again and check your new firmware version in the System Status screen.

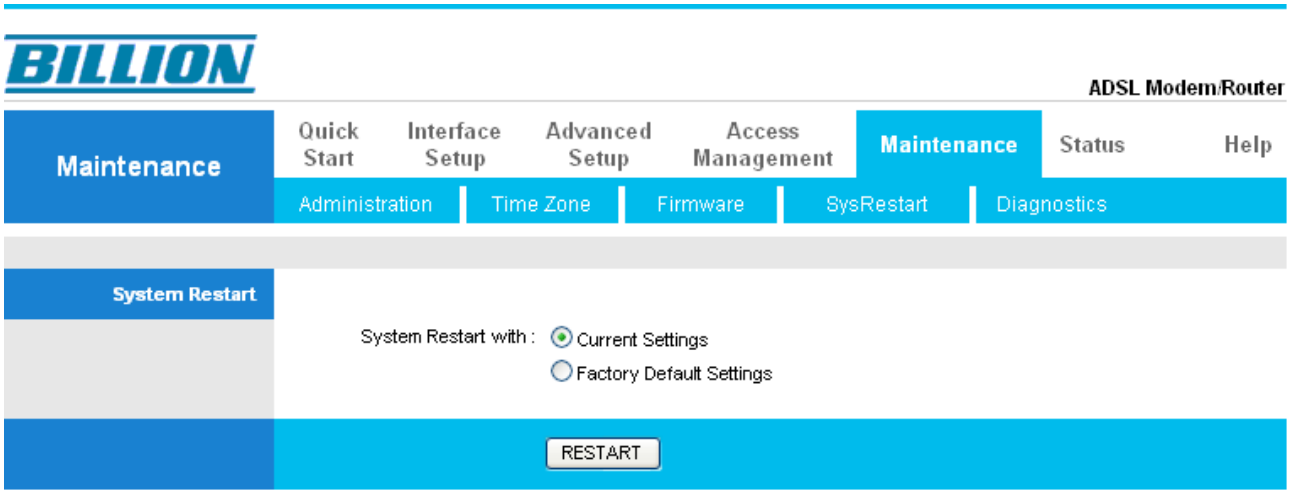
If the upload was not successful, the following screen will appear. Click Back to go back to the Firmware screen.

**Warning**

DO NOT power down the router or interrupt the firmware upgrading while it is still in process. Improper operation could damage the router.

### 4.5.4 SysRestart

Click **SysRestart** with option **Current Settings** to reboot your router (and restore your last saved configuration).

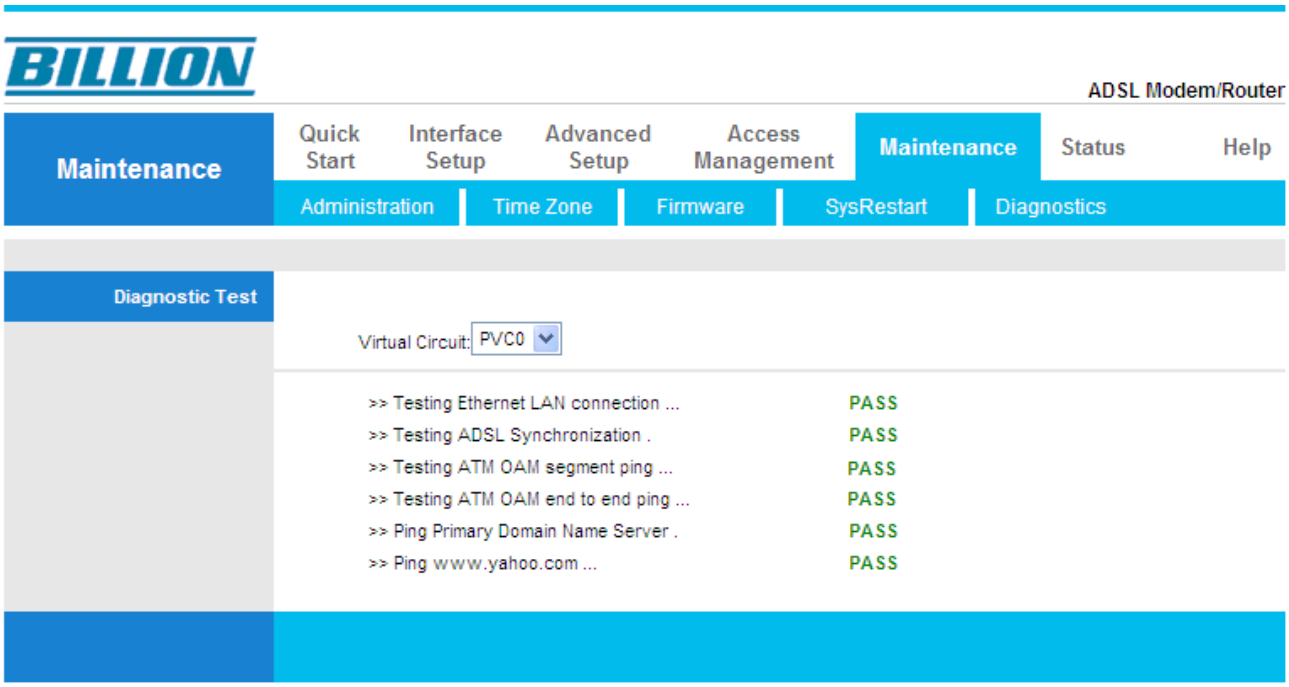



If you wish to restart the router using the factory default settings (for example, after a firmware upgrade or if you have saved an incorrect configuration), select ***Factory Default Settings*** to reset to factory default settings.

You can also reset your router to factory settings by holding the small Reset pinhole button on the back of your router in more than 6 seconds whilst the router is turned on.

## 4.5.5 Diagnostics

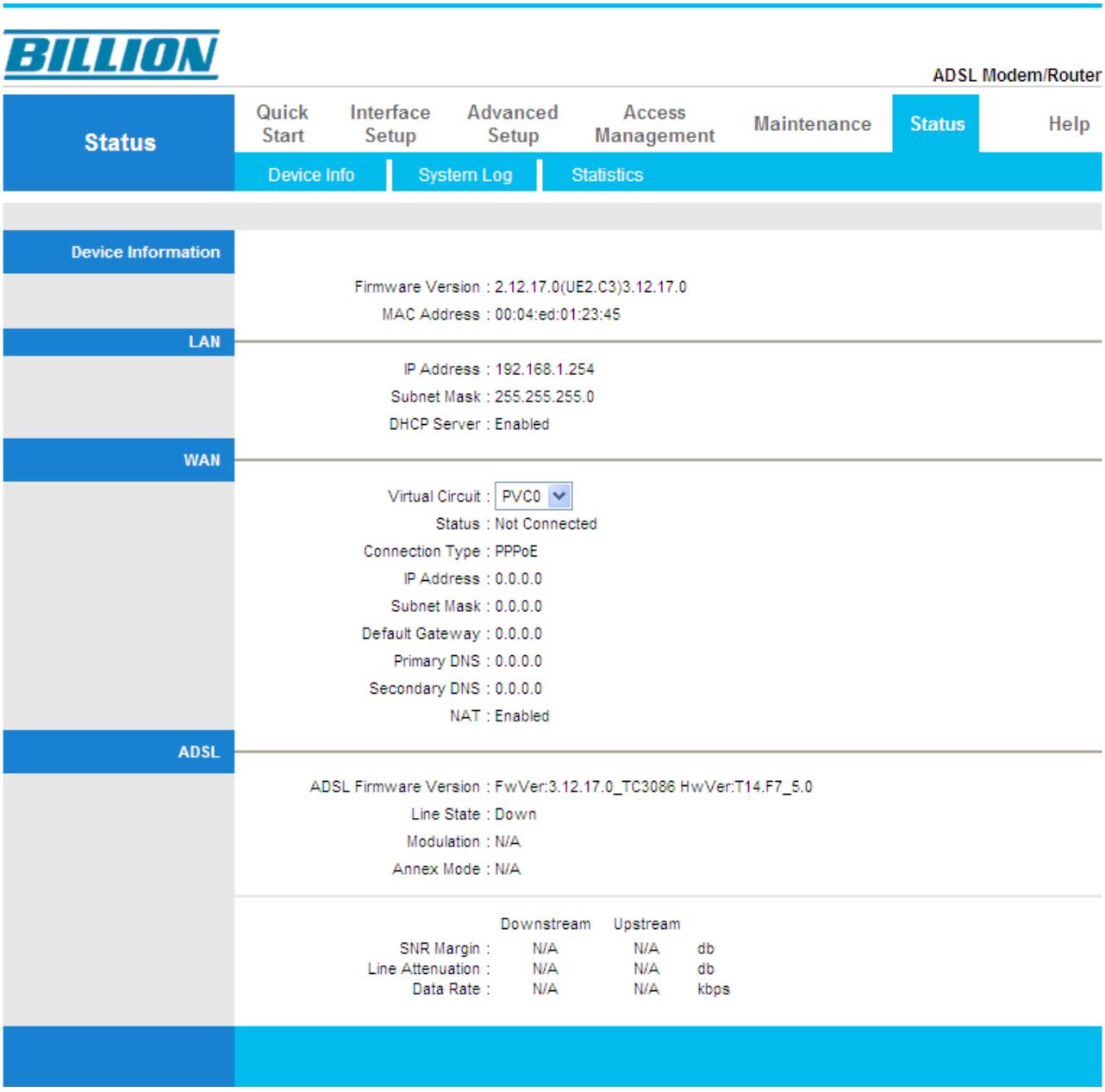
The Diagnostic Test page shows the test results for the connectivity of the physical layer and protocol layer for both LAN and WAN sides.



## 4.6 Status

### 4.6.1 Device Info

This page displays the current information for the ADSL Router. It will display the Firmware version, LAN, WAN, and MAC address information.




**Device Information**

- **Firmware version:** This is the Firmware version.
- **MAC Address:** This is the MAC Address.

## LAN

- **IP Address:** LAN port IP address.
- **Sub Net Mask:** LAN port IP subnet mask.
- **DHCP Server:** LAN port DHCP role - Enabled, Relay or disabled.

## WAN

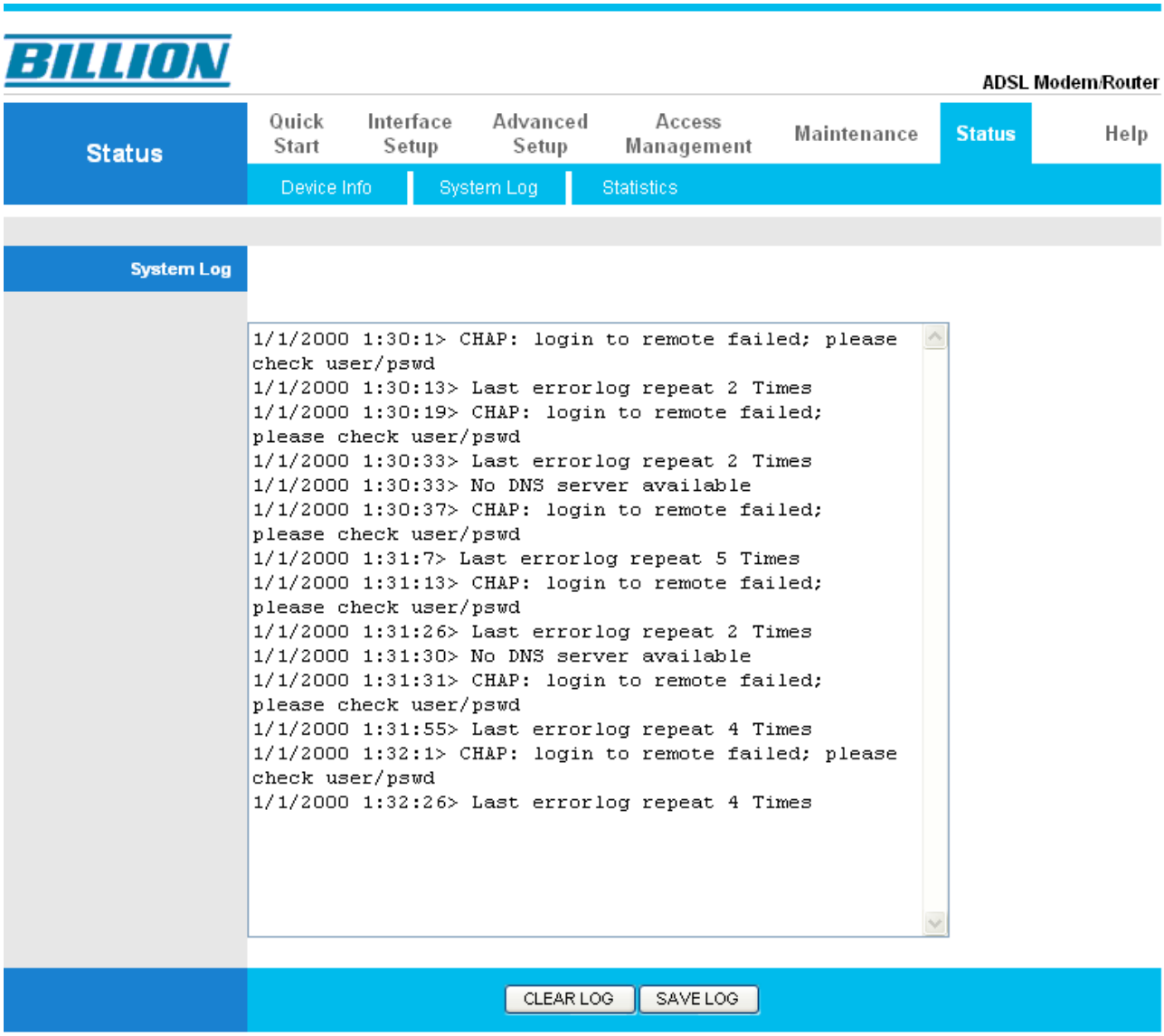
- **Virtual Circuit:** There are eight groups of PVC that can be defined.
  VPI: The valid range for the VPI is from 0 to 255
  VCI: The valid range for the VCI is from 1 to 65535
- **Status:** “Not connected” or “Connected”
- **Connection Type:** Name of the WAN connection.
- **IP Address:** WAN port IP address.
- **Subnet mask:** WAN port IP subnet mask.
- **Default Gateway:** The IP address of the default gateway.
- **Primary DNS:** the address of the primary DNS server.
- **Secondary DNS:** the address of the secondary DNS server.
- **NAT:** Enabled or Disabled NAT function

## ADSL

- **ADSL firmware version:** This is the DSL firmware version associated with your router
- **Line State:** This is the status of your ADSL link.
- **Modulation:** This field displays the ADSL modulation status for G.dmt or T1.413.
- **Annex Mode:** To show the router’s type, e.g. Annex A, Annex B
- **SNR Margin:** To show the router’s SNR margin for Downstream/Upstream
- **Line Attenuation:** To show the router’s for Downstream/Upstream
- **Data Rate:** To show the router’s data rate for Downstream/Upstream

## 4.6.2 System Log

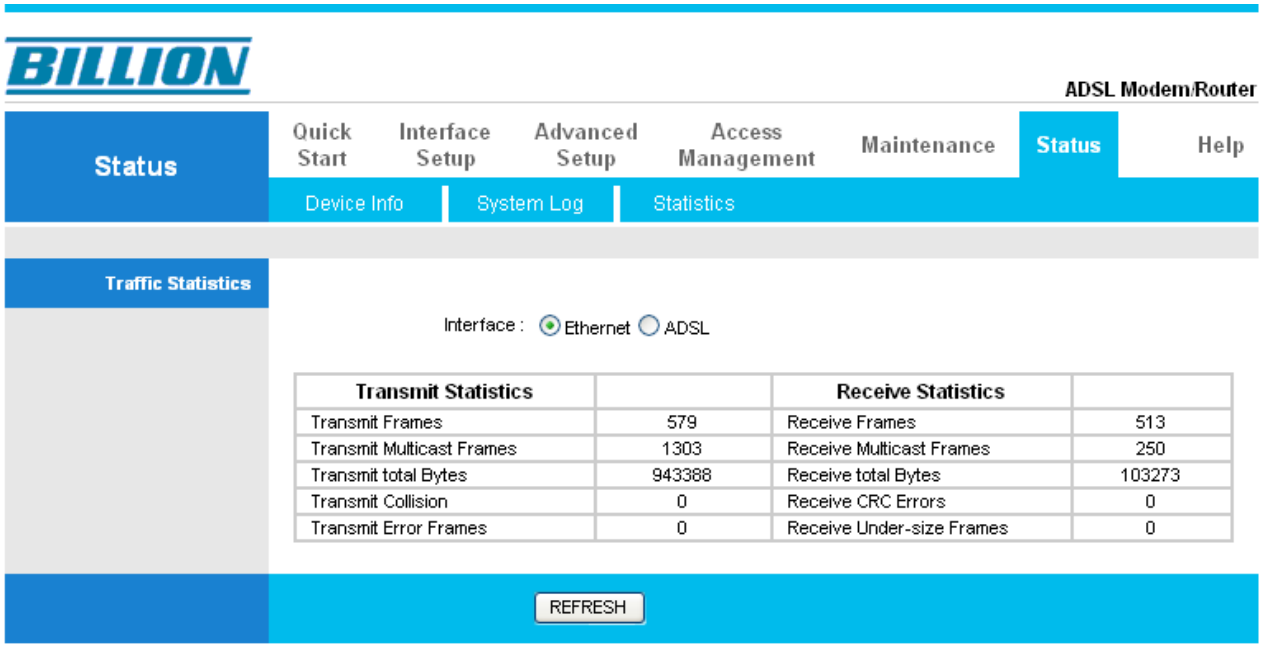
Display system logs accumulated up to the present time. You can trace historical information with this function.


BILLION
ADSL Modem/Router
Status
Quick Start
Interface Setup
Advanced Setup
Access Management
Maintenance
Status
Help
Device Info
System Log
Statistics
System Log
1/1/2000 1:30:1> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:30:13> Last errorlog repeat 2 Times
1/1/2000 1:30:19> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:30:33> Last errorlog repeat 2 Times
1/1/2000 1:30:33> No DNS server available
1/1/2000 1:30:37> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:31:7> Last errorlog repeat 5 Times
1/1/2000 1:31:13> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:31:26> Last errorlog repeat 2 Times
1/1/2000 1:31:30> No DNS server available
1/1/2000 1:31:31> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:31:55> Last errorlog repeat 4 Times
1/1/2000 1:32:1> CHAP: login to remote failed; please check user/pswd
1/1/2000 1:32:26> Last errorlog repeat 4 Times
CLEAR LOG
SAVE LOG

### 4.6.3 Statistics

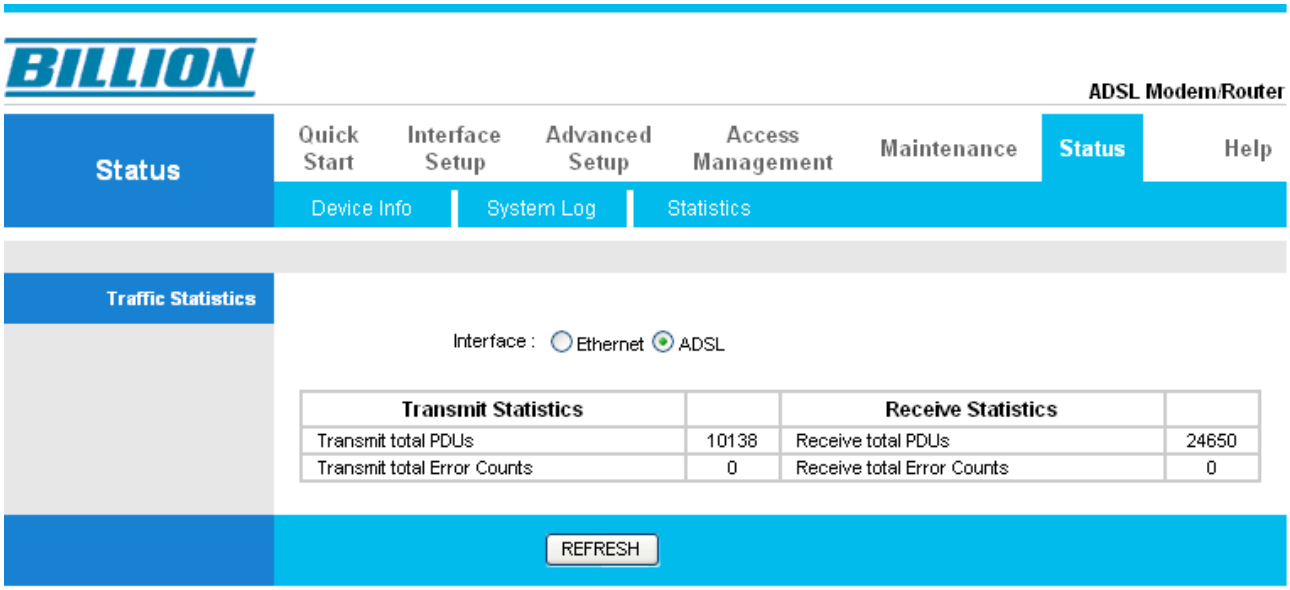
Read-only information here includes port status and packet specific statistics. Also provided are "Transmit Statistics" and "Receive Statistics".

**Ethernet**




- **Interface:** This field displays the type of port.
- **Transmit Frames:** This field displays the number of frames transmitted in the last second.
- **Transmit Multicast Frames:** This field displays the number of multicast frames transmitted in the last second.
- **Transmit total Bytes:** This field displays the number of bytes transmitted in the last second.
- **Transmit Collision:** This is the number of collisions on this port.
- **Transmit Error Frames:** This field displays the number of error packets on this port.
- **Receive Frames:** This field displays the number of frames received in the last second.
- **Receive Multicast Frames:** This field displays the number of multicast frames received in the last second.
- **Receive total Bytes:** This field displays the number of bytes received in the last second.
- **Receive CRC Errors:** This field displays the number of error packets on this port.
- **Receive Under-size Frames:** This field displays the number of under-size frames received in the last second.

## ADSL



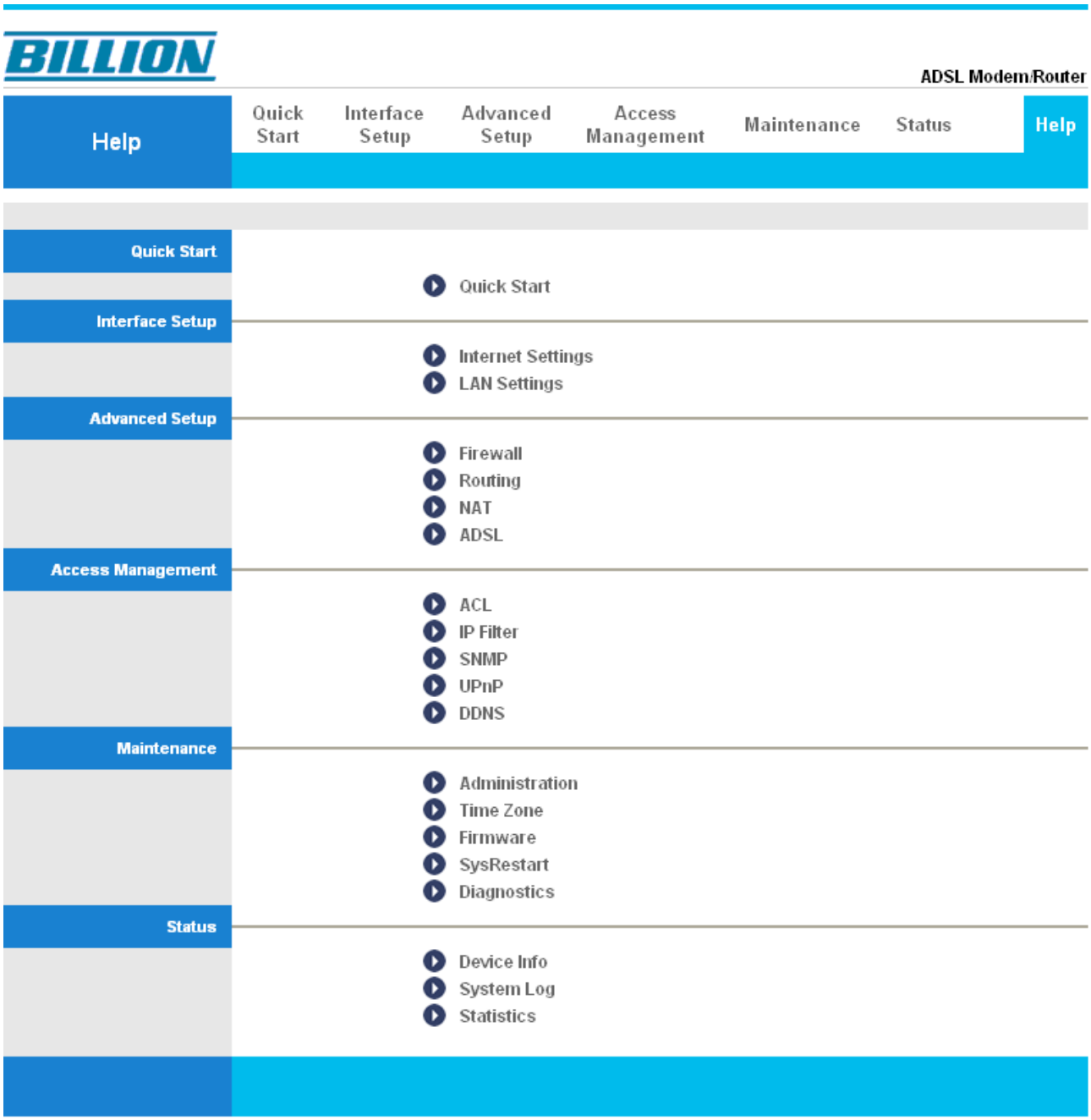

**Transmit total PDUs:** This field displays the number of total PDU transmitted in the last second.

**Transmit total Error Counts:** This field displays the number of total error transmitted in the last second.

**Receive total PDUs:** This field displays the number of total PDU received in the last second.

**Receive total Error Counts:** This field displays the number of total error received in the last second.

## 4.7 Help




This help page provides you some useful messages such as the introductions of some concepts and some guide.

When some problems are encountered, you can turn to this page for help.

For example, if you don't understand what is Quick Start, you can go to this page, click on Quick Start, then you'll see some messages about it, and understand it quickly. This function provides you an easy way to help yourself.

# Chapter 5
# Troubleshooting

If the ADSL2+ Router is not functioning properly, you can refer first to this chapter for simple troubleshooting before contacting your service provider. This could save your time and effort but if the symptoms persist, then consult your service provider.

## Problems starting up the router

| Problem | Corrective Action |
|---|---|
| **None of the LEDs are on when you turn on the router.** | Check the connection between the adapter and the router. If the error persists, you may have a hardware problem. In this case you should contact technical support. |
| **You have forgotten your router login name and / or password.** | Try the default username "admin" and password "admin". If this fails, you can restore your router to its factory settings by holding the Reset button on the back of your router more than 6 seconds. |

## Problems with the WAN Interface

| Problem | Corrective Action |
|---|---|
| **Initialization of the PVC connection ("linesync") failed.** | Ensure that the telephone cable is connected properly from the ADSL port to the wall jack. The ADSL LED on the front panel of the router should be on. Check that VPI, VCI, encapsulation type and type of multiplexing settings are the same as those provided by your ISP. Reboot the router GE. If you still have problems, you may need to verify these settings with your ISP. |
| **Frequent loss of ADSL linesync (disconnections).** | Ensure that all other devices connected to the same telephone line as your router (e.g. telephones, fax machines, analogue modems) have a line filter connected between them and the wall socket (unless you are using a Central Splitter or Central Filter installed by a qualified and licensed electrician), and ensure that all line filters are correctly installed and the right way around. Missing line filters or line filters installed the wrong way around can cause problem with your ADSL connection, including causing frequent disconnections. |

## Problems with the LAN Interface

| Problem | Corrective Action |
|---|---|
| **Can't ping any PCs on the LAN.** | Check the Ethernet LEDs on the front panel. The LED should be on for a port that has a PC connected. If it is off, check the cables between your router and the PC. Make sure you have uninstalled any software firewall for troubleshooting. |
| | Verify that the IP address and the subnet mask are consistent between the router and the workstations. |

# APPENDIX

# Product Support and Contact Information

Please refer to the suggested solutions provided in the **Troubleshooting** section of the User Manual to solve the problems you have encountered. If you cannot find solutions to your problems from the Troubleshooting section of the manual, please contact the dealer where you purchased this product for assistance.

**Contact Billion**

**WORLDWIDE**

http://www.billion.com

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